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# workspace design, ergonomic requirements for university workspaces

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Grau en Enginyeria en Disseny Industrial i Desenvolupament de Productes

Curs 2018-2019

**OSLOMET**



**UNIVERSITAT  
POLITÈCNICA  
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C

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# European Project Semester

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**ABSTRACT**

At the Oslo Metropolitan University, most workspaces are still organised following an old-fashioned model. To improve this situation, the University imparted this project to a European Project Semester group.

The main part of this assignment is researching about modern ways of 'working together' and developing concepts how to enhance the employees' work accommodations. We analysed this challenge by reading professional articles about contemporary offices. Based on our findings we organised some tests to assess with the participants the different types of work environments. In order to receive a professional view on workspace design, we also visited entrenched furniture companies and their customers.

After the exploration part, we come along with the decision to integrate the so called Activity Based Working ('ABW') for OsloMet's workspaces. This model offers the opportunity to collaborate with colleagues while also giving the chance to work alone when focus is needed. This is possible by creating different zones that are not personalised.

Our concept includes four types of workspaces based on ABW, named Cocoon, Symbiosis, Mutualism and Waterhole. Every space is designed in relation to the type of activities, and therefore employees move from one space to another depending on their tasks at hand.

In order to improve the new work environment at OsloMet we also designed an app that helps finding free workspaces at the University.



# abstract

03

At the Oslo Metropolitan University, most workspaces are still organised following an old-fashioned model. To improve this situation, the University imparted this project to a European Project Semester group.

The main part of this assignment is researching about modern ways of 'working together' and developing concepts how to enhance the employees' work accommodations.

We analysed this challenge by reading professional articles about contemporary offices. Based on our findings we organised some tests to assess with the participants the different types of work environments. In order to receive a professional view on workspace design, we also visited entrenched furniture companies and their customers.

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In order to improve the new work environment at OsloMet we also designed an app that helps finding free workspaces at the University.

## Keywords:

European Project Semester

OsloMet

Workspaces

Activity Based Working

Collaboration



# thanks

First of all, we would like to thank our supervisor, Petter Øyan, for all the experience offered, the time and the enthusiasm in each step we took.

We want to thank our teachers Ms Kristin Solli from the English and Academic Writing course and Mr Tengel Aas Sandtrø from Working in Projects.

In addition, we experienced a great deal of support from the business community and that is why we appreciate Kinnarps Oslo's professional help, as well as giving us the possibility of using their facilities. They have showed us how collaboration between companies and students should be like.

Also thanks to Martela, as the nowadays provider of OsloMet's furniture, for giving us the necessary insights to understand the path of the whole redesigning process.

Concluding with the companies part, we are very grateful to IBM for inviting us into their offices, a real ABW environment, explaining their implementation plan and the benefits of the new way of working.

And last, but not least, thanks to the students and teachers that participated in our lab test.





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# EPS explanation



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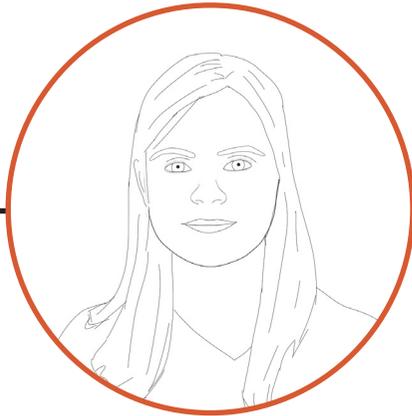
The European Project Semester combines theoretical studies at University with practical project work within an international and interdisciplinary team. Regardless of some cultural and personal differences, we understood the importance to arrange a cooperative collaboration to achieve good final results.

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Our project semester in Oslo, started on the 21st of January 2019 with a warm welcome and introduction from our supervisors. The assignment given by Petter Øyan consisted of observing and mapping situations in workspaces in order to develop a set of suggested ergonomic designs for OsloMet.

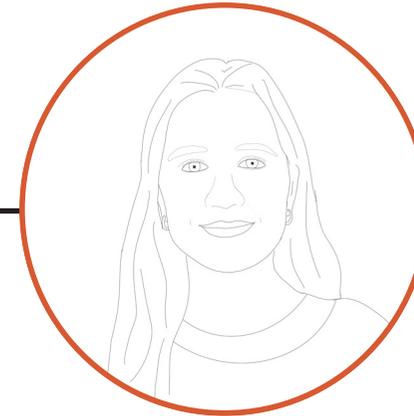
In order to reach the main objective as mentioned above, we drafted some specific goals by dividing the assignment into several tasks: First, we organised some tests to identify how people with different heights and physiques, act within various situations and workspace arrangements. Following this, we compared these results with the main ergonomic parameters. To enable the ideal set-up, we planned to create a 'template' by defining the exact criteria needed for the workspaces.

*Maj-Lis  
Beyer*



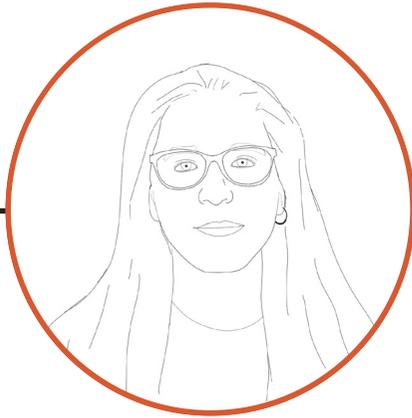
Maj-Lis studies International Sales and Purchasing in Engineering at the Kiel University of Applied Sciences. She takes part of the EPS at OsloMet for finishing her bachelor's degree and to improve her skills in international working. As the only Industrial Engineering student in the group, she can contribute her knowledge about purchasing as well as her experiences in project management and team working.

*Lauren  
Bru*



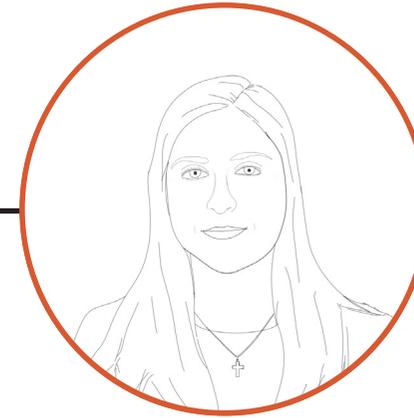
Lauren studies Product Development at the University of Antwerp. She is now in her last semester of her bachelor's degree. She has a broad interest in Science and the drive to do something creative with that knowledge. Lauren has decided to take part of this EPS program to develop her communication skills, which is a crucial skill for a product developer. Also studying abroad would give her the opportunity to improve her linguistic abilities.

*Roser  
Garcia Bayarri*



Roser studies Industrial Design and Product Development Engineering at the Polytechnic University of Valencia. She is doing the EPS program at OsloMet as her bachelor's thesis, in order to improve her linguistic and team-working skills. Since doing the thesis abroad is challenging, she wants to prove not only that she has the necessary knowledge for taking part in this program, but that she is able to work in such a multicultural group.

*Paola  
Suess*



Paola studies Industrial Design at the University of Monterrey. She is in her third year of professional studies. She was interested on the EPS project to improve her English and to learn more about her study area. Her interest on product development will help her contribute to the project process and also to improve her soft skills.

Our team is composed by four members of four different nationalities. We are a group that complements each other not only on the cultural part, but also in our professional fields. Whilst getting to know each other, we decided to take several personality tests to see how our decisions and our behaviour would affect our project development. We discovered that we all have different personalities and that each one of us has different strengths, depending on the task.

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16 The first test we conducted was the '16 personalities' test. We organised this test to enable us to understand our individual ways of thinking and operating. Thus, allowing us to compile direct comparisons of our personalities. The test allowed us to see each other's strengths and weaknesses. It also helped us to better see and understand where we could be complementary to each other. When we compiled our test results, we found out that we all had different personality descriptions, being the Executive (Roser), the Advocate (Maj-Lis), the Campaigner (Paola) and the Protagonist (Lauren).

The definitions of these are:

The Executive which refers to an extrovert person who is representative of tradition and order.

The Advocate who is usually quiet but tends to be an idealist.

The Campaigner is a creative, enthusiastic person who has a sociable free spirit.

The Protagonist who is considered to be charismatic and inspiring leaders who are able to enchant their listeners.

Later on, we did another personality test called the "Belbin Test".

We were given different situations and we rated each situation providing 10 points per question, depending on how important we considered each situation. The given results were entirely different and we noticed distinct strengths allowing us to bundle them in order to achieve the best final result.

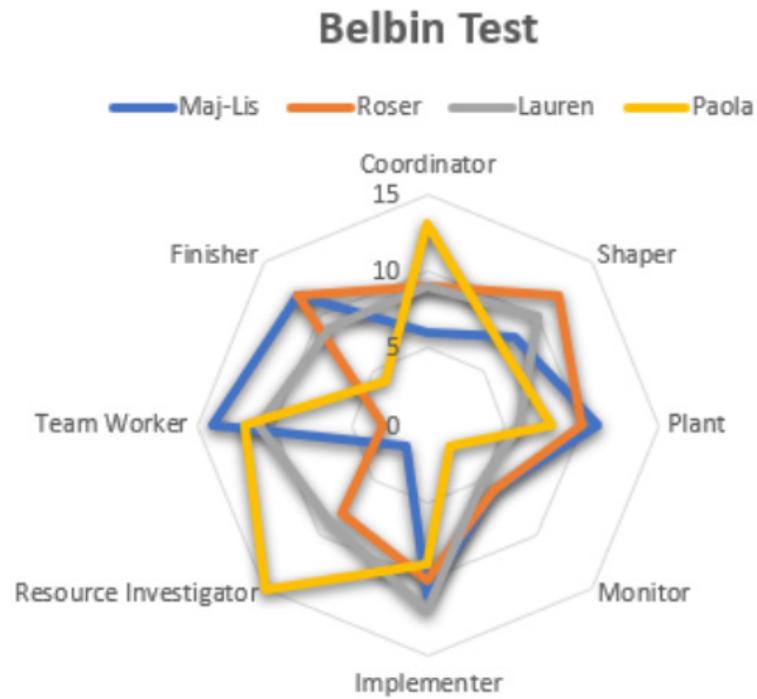


Figure 1. Graph of Belbin test

Hello

# introduction

Some offices still follow antiquated working styles. Every workplace was designed for a particular use, but many of them are no longer used for that purpose. This can result from multiple demands on a specific workspace. It is important to attune workspaces to the needs of the employees. Workers' needs and ways of working have changed. Many people work in different places and that is why their offices are often empty. As space costs are expensive it is important that every space is used optimally. The surface of the OsloMet offices is 21 m<sup>2</sup> per person. The main question here is whether 21 m<sup>2</sup> is sufficient or not, and if this is the best workspace for OsloMet workers. For years, office space has equated to a level of status within companies, but the world has changed, people have different needs and changing work activities.

OsloMet is a University with many employees and students. They continue today utilising an old workspace model - this is no longer working. Students and teachers complain about insufficient offices space, meeting rooms and workspace for studying. Also, due to the increasing technology, work is conducted very differently than before. Employees have different needs and this makes it very complex. Today, open workspaces are widely used, but this way of working is not as comfortable for everyone.

How much space does an employee really need? This question became the main issue in this study. We want to find out how an employee operates in different areas (private, open, shared, etc.). By observing these different behaviors, we were able to get a better picture of the obstacles that often occur today. Previously, the employee was considered as a static object. However, in this project, we will look for all types of movements and behaviors taking into account the size differences between people. We want to see how small a personal workspace can be and what kind of equipment every employee requires every day.

Our project goals are to specify a series of criteria for identifying different needs and activities of OsloMet's employees and students in order to redesign their workspaces. The idea is to take people into other environments to help them think and work differently.





**project management**

methods



FRANCK LEIBOVICI  
RG-LA-REINE; COMPAGNIE DU ZERE  
BOUCHE; DAVID MOSS  
STIAN RIZZO  
MOSS

ERTURE

JE

22

14 00 UNE PEINTURE PARLÉE  
15 00 BEAUBOURG-LA-REINE: LES KELLERS  
19 00 BEAUBOURG-LA-REINE: JULIE NIC... ET SIR ALICE  
20 00 TEATRINO PALERMO: INAUGURATI...  
20 30 GRANDE SALLE: ELMGREEN & DR... ET

VE

23

14 00 UNE PEIN...  
16 00 BEAUBOURG-L...  
19 00 CONFÉRENCE-...

20

14 00 UNE PEINTURE PARLÉE  
16 00 BEAUBOURG-LA-REINE: LAURENT FRIQUET  
ET MARIE-PIERRE BRÉBANT

30

14 00 UNE PEINTURE PARLÉE  
16 00 BEAUBOURG-LA-REINE  
SOPHIE LENOIR ET STÉPHANE  
19 00 CONFÉRENCE-PERFORM...  
GUILLAUME DÉSANGES

5

14 00 UNE PEINTURE PARLÉE  
14 00 TEATRINO PALERMO, CINÉMA 2: BORIS CHARMA...  
16 00 BEAUBOURG-LA-REINE: GILLES GASTON-DREYFUS,  
SOPHIE LENOIR ET STÉPHANE ROGER  
18 00 PALERMO: OLIVIERO TOSCANI  
20 30 GRANDE SALLE: STEVEN COHEN

6

14 00 UNE PEINTURE PARLÉE  
16 00 BEAUBOURG-LA-REINE:  
MARIE-PIERRE BRÉBANT  
19 00 CONFÉRENCE-PERFORM...  
OLIVIERO TOSCANI

# work organisation

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Right from the projects' beginning we met at least three times a week in order to work properly and not to get into trouble in the end because of lack of time. To reconcile early and late risers we agreed to usually meet at 10 o'clock in the morning that we all considered as a good compromise.

We are grateful that we had our own lab at the University, because it allowed us to work properly in a suitable environment with the equipment to complete our investigation.

For the correct operation of the group, we created a serie of rules to define the members rights and duties. These rules refer for example to language matters, deadlines, keeping in contact, agreeing on decisions and punctuality.

# work structure

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Since no one of us has ever designed workspaces before, we needed to read professional articles to get a first insight. Based on our new findings, we created a mind-map to get an overview on the topic.

The second floor of OsloMet's building P46 was redesigned recently and we had the possibility to have a guided tour that helped us to develop ideas for our own workspace design.

Certainly, we also needed to collect our own 'real life' data. In order to do so, we set up a laboratory test and tested persons in five different work environments. This gave us the opportunity to observe which setting is the most popular and integrate those findings into our final conclusions.

The last step of our research was visiting the furniture companies Kinnarps and Martela, to learn from their expertise. They explained us many interesting details about modern workspace design. Moreover we visited the headquarter of IBM Norway, that recently redesigned their own workspaces as well as their new way of working.

Based on our findings we decided to integrate Activity Based Working in OsloMet and established four different zones for different kinds of working.

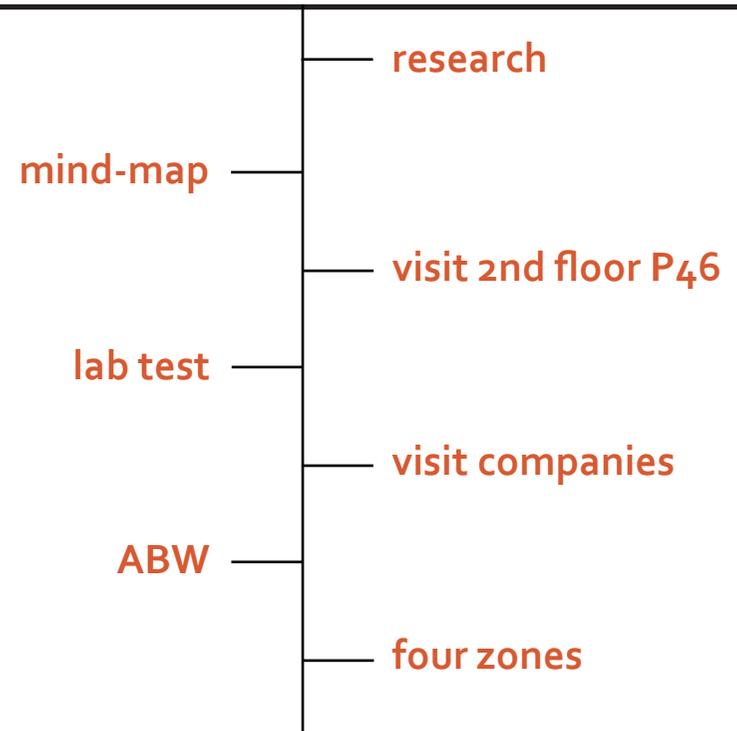


Table 1. Chronologic axe

# scope

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It is clear that our project scope needed some limitations, because otherwise we could not focus on the main task.

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Our developed workspaces do not include aspects of technical infrastructure, like isolation and electrical installation. Our target is to create suitable areas with appropriate furniture taking into account ergonomic factors.

The implemented lab test also only contains physical measurements instead of chemical or strength experiments.

In the end our zones, which are only designed for OsloMet, vary in size, needs and privacy.

# stakeholders

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- 26 Stakeholders are all the people with an interest and concern in our project. We can categorize our stakeholders into three levels regarding to the importance level: the core stakeholders, the primary stakeholders and the secondary stakeholders.



Our core stakeholder is our supervisor Petter Øyan, who is directly involved in our project. He is used to design office furniture and he has been in this profession for more than 25 years, so our investigation project will be as useful for him as for us.

OSLO  
MET

The Management department at the University is responsible of the account and the well-being of their employees. Beside that, the Facility Management is in charge of purchasing the right furniture for the University.



The government concerns about the economical elements since OsloMet's budget depends on its funds.



Offices furniture companies may add different elements or changes in their designs based on our research and studies.



Our project results will change employees work life, since we will be changing their working environment. The employees have different needs and activities, depending on the hours they work at OsloMet.



We as an external group are a stakeholder as well. We have a different point of view and we can use our background information and education to solve this project in an efficient way.





# project development

## 1. exploration

# research

- Are there a high-level champion with a strong commitment to car-sharing?
- Are there community groups that have shown interest in starting a car-sharing program and have the capacity to get a project off the ground?
- What incentives can partners provide for a commercial operator, such as start-up funding, marketing, zoning changes and parking provision?
- Is there an anchor member, such as a city or business that wishes to replace its vehicle fleet with car-sharing and can provide guaranteed baseline usage?

**SHARECARS**  
 FLEXCAR, HERTZ 24/7  
 GO GET, CARNEXT DOOR  
 ESTIMATED 50,000  
 CAR-SHARERS IN  
 AUSTRALIA.

**SPIN**  
 2017, 10,000 BIKES  
 across 10 US.  
 "google bikes  
 for wheels"  
 dockless

**FINDING  
 A BIKE**



**PASS BOX**  
 PROTOTYPE IN  
 MELB. USES ULTRA-  
 SOUND REPORTS  
 ON CYCLIST SAFETY  
 TO AUTHORITIES



**CONVENI  
 ENCE**

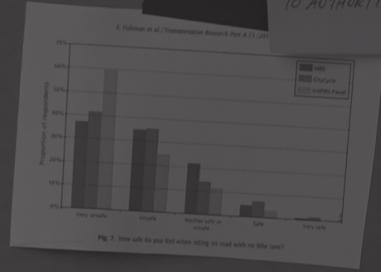


Bikeshare has never been this easy.

**BAAS DOCKLESS  
 SHAREBIKES**  
 ALL APP-RUN  
 FIND-UNLOCK-RIDE  
 LETS YOU PICK UP  
 ANY BIKE THAT IS  
 AVAILABLE & LEAVE  
 IT THERE (VARIETY OF  
 BIKES)



**SMARTGRIPS**  
 RETRO FITS INTO  
 HANDLEBARS.  
 HAS GPS GIVES  
 RIDER HAPTIC  
 FEEDBACK FOR NAV,  
 LETS LOCATE BIKE  
 VIA APP.



do others  
 deposit

**LOCATION**

PRICING



**HANGZHOU**  
 60,000 BIKES  
 FOUND EVERY  
 100 METRES.  
 30% OF LOCALS  
 INCORPORATED THE  
 BIKES IN TRANSPORT

**DENSITY**

**SAFETY**

**BLAZE  
 LASERLIGHT**  
 NOW ON 250  
 CITEBIKES IN NEW  
 YORK AS A TRIAL



**BLUEBELL**  
 SIMPLE LIGHT  
 NAVIGATION THAT  
 TAPS INTO MOST  
 CYCLE FRIENDLY  
 ROUTES

seems  
 e a  
 deal.



**ECO HELMET**  
 FOLDABLE  
 LIGHT COL LAPSPACE  
 HELMET  
 OUT OF CARDBOARD

**HYGIENE**

**STREETHIX  
 TOOL  
 CODE BY AMERICA**



**LARGEST  
 TOOL**

# reading

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At the beginning of our research process, we needed as much information as possible to expand our knowledge about workspaces.

Whilst reading articles we found some interesting information and started to identify areas in which we should focus more. Obviously, we read things we already knew, but some information we gained was completely new for us.

With our advanced knowledge, we decided to restart again and specify our research focus. In order to select which areas to focus on, we established a classification of terms. With this classification, we made a mind map to summarise our information in order to provide us with a clear overview.

# mind map

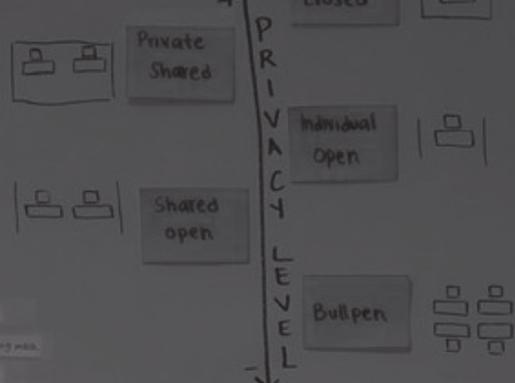
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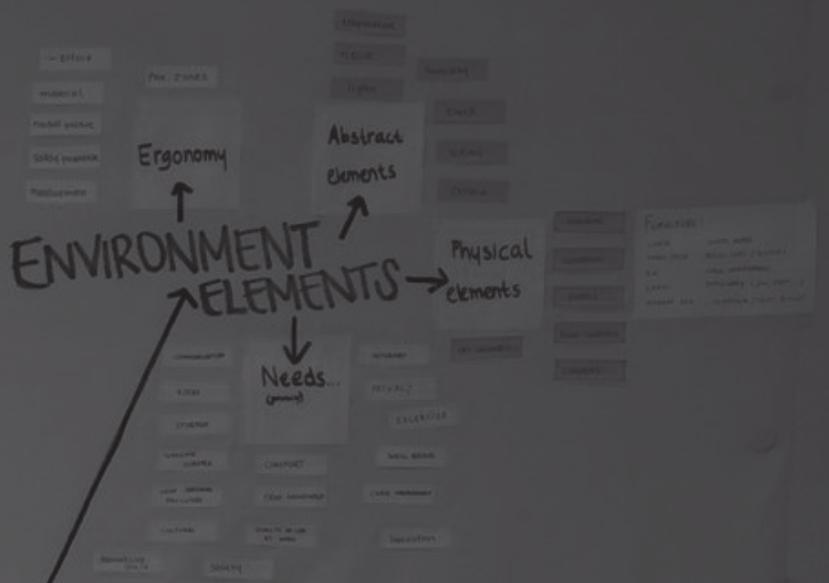
Commencing our project, we decided to make a mind map about workspace design. We received many interesting articles from our supervisor Petter Øyan. These articles gave us a thorough insight into the topic workspace design. The mind map offered the opportunity to develop and organise a lot of information. This method allowed us to disparte important issues and to have a clear comparison of them. In the following pages the topics of the mind map will be explained more in detail.

# WORK SPACES

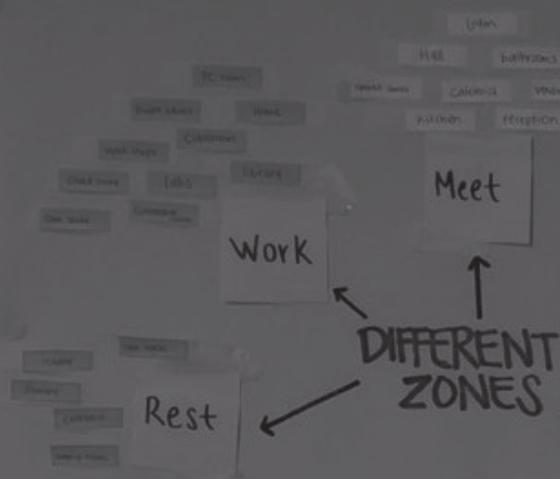
## KIND OF OFFICES



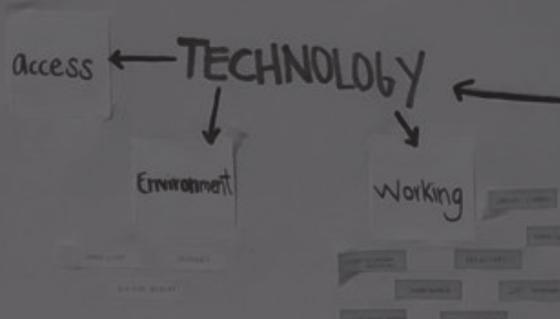
## ENVIRONMENT ELEMENTS



## DIFFERENT ZONES

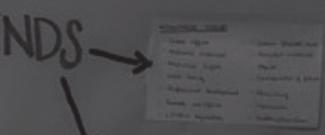


## TECHNOLOGY

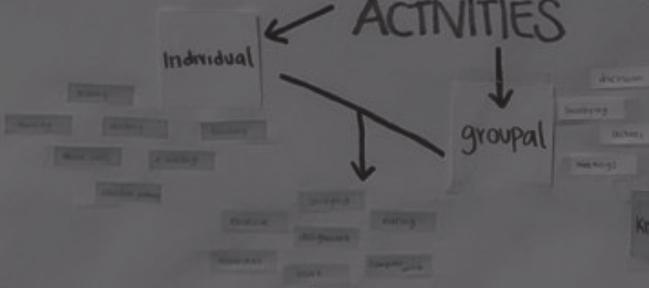


## BUDGET

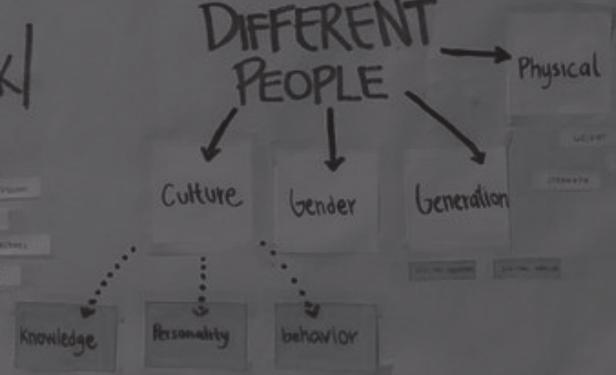
## TRENDS



## DIFFERENT WORK/ACTIVITIES



## DIFFERENT PEOPLE



A contemporary workspace offers different kinds of zones for the employees. We divided them into the fields working, meeting and resting according to the type of working that belongs there.

We have set up five different kinds of offices based on the level of privacy and those are, in order from more to less privacy: 1. Private closed, 2. Private shared, 3. Individual opened, 4. Shared opened and 5. Bullpen.

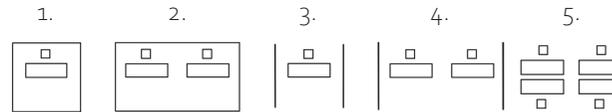


Figure 2. Representation of the five offices

We chose to divide this subject into four subcategories: ergonomics, abstract elements, physical elements and needs. These topics show that a workplace can have many different impacts on the employees behavior. It is crucial to discover this and take the important information in consideration.

As part as the designing process, some trends both in social and aesthetic aspects must be taken into account. The main ones are being respectful, caring about employees well-being, dislocation and flexible environments, natural materials, natural light, recycling, etc. Last but not least, ABW is a concept that we will develop later.

## different people

Today multiculturalism is a very important value all over the world. We decided to take into account the difference of people regarding their culture, generation, digital adopters/ non adopters and physical differences like their weight, height, strength.

## different work/activities

The differing work activities are a very influential part on the design of the workspace. We wanted to investigate and take into consideration all the different types of activities people can do in OsloMet. We divided the working activities depending on their level of concentration. We defined high concentration level which include research, reading phone calls, focussing, etc. and low concentration level which include

## technology

Today working without technology is inconceivable. Especially computers and the internet are crucial for working efficiently nowadays, for example to communicate with customers or colleagues all over the world. It is necessary that the workspaces are appropriately equipped.

## budget

This topic was challenging for us because we did not have much information available since we are students. We researched from the basic information provided for the standard offices in Oslo which is 300€ per m<sup>2</sup>. Since our focus lays on the research and ergonomic field, the budget was not our main target.

OSLO  
ONNET



# guided tour OsloMet offices

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Before we started our lab tests, we had the opportunity to visit the second floor of the building. This gave us a lot of interesting information about one possible workspace setting in OsloMet. The department we visited is responsible for the University's communication and administration. It is important to take into account that the dynamic of working in this department is different from others. We noticed during this tour, that the area is designed around the particular activity of that workplace than of a hierarchical division.

In the work environment, we observed that most of the people do not have a permanent workplace. However, they have their own cupboard where they can store all their personal belongings. Every morning the employees can choose a place to work, according to the type of work they have to do that day. There are various options, from open to completely isolated. Some places can be booked in advance to ensure a place.

Of course, there were employees who were not satisfied with this "shared" system. They had the opportunity to have their own closed office. It was striking that the employees who chose for a private office appear to do more concentrated work than the others. They were mainly focused on reading, analysing and writing. The other employees worked more in areas of design, communication and they engaged in more frequent meetings.

private closed



Figure 3. Private closed examples

On the second floor, there are a few private offices. These all have one glass wall which allows adequate lighting and this gives the impression that you are not completely isolated. Employees with a closed workspace opted for this themselves. They can concentrate better in a closed space and they can do more focused work.

*"The only thing I regret is that sometimes I miss out on some information about the others in the open workspaces. I think it is important that I always eat in the kitchen during the afternoon. Because of this I still have contact with the others a lot."*

Anne Møgster, employee OsloMet



Figure 4. Shared closed examples

shared closed

When two employees often work together, they can choose to have a closed workplace together. We saw that these often had a different set-up. Some chose to sit across each other, others preferred to sit with their backs together or just next to each other.



Figure 5. Individual opened examples

If people have to really focus on work, they can choose to have a secluded spot in an open space. This quiet space has more walls of a larger size covering between the desks. The walls keep the noise away from the worker. This allows a degree of sound-proofing.



Figure 6. Shared opened examples

## shared opened

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Most of the employees prefer to work in the open areas. This is a free sitting space and everybody can choose their desk every morning.



Figure 7. Meeting room closed examples

Employees also have access to different meeting rooms in which they have different set-ups depending their needs. What we observed most had in common was the writing tools provided on these rooms. They also had different visibility levels provided by the crystal walls or the opaque walls.



Figure 8. Meeting room opened examples

## meeting room opened

43

The open meeting rooms gave a variety of options for the employees to choose the set-up depending on their need. They were arrangements that allowed only two people sitting, and some gave the accessibility to have bigger meetings. All of them had different privacy levels which were determined by the types of division screens.



Figure 9. Resting room example

The resting room is also available for employees when they need a break or need to take a quick nap when not feeling good. It was designed to improve the well being of employees but it is said by the employees' society that it is not socially accepted to be in this room. This is because when being in here, it gives the impression of inefficiency.



Figure 10. Dining room example

## dining room

45

Finally, open resting areas are available where employees feel free to have lunch, meet, and rest. They are variations such as a regular table, couches with coffee tables and individual lobby seatings to meet with a colleague.



# activity based working

As mentioned before, Activity Based Working is not for everyone, but in essence it fits for OsloMet's needs. Through researching and observing the current offices at the University, we can clearly state that there are many unused offices and not enough open areas. The first thing that has to be implemented in this project would be to work with the employees and introduce them this new way of working.

ABW will provide the option for more communication between departments, since according to Steve Miranda (Cornell University) "a lack of friendships at work or social connection can be bad for people – and bad for business".<sup>1</sup> We expect that this system will not only increase the productivity and efficiency, but it will also improve the social aspect by getting the employees work together in a better environment, giving them the comfort and satisfaction they need.

It is very important that employees feel like their second home while working and being able to have the ambition to work everyday. With ABW the employees will have the opportunity to choose their place to work depending on their needs, personality, humor or activity work. This way, a bigger percentage of employees will be satisfied due to the free choice or liberty they will experience while selecting their own workspace. According to the researches on ABW by Lauren Arundell and her colleagues here is "a significant intervention effect on satisfaction with the physical environment with greater increase in satisfaction among the ABW group, relative to the comparison group at follow-up, which equated to a large effect size".<sup>2</sup> Every person has different needs and ways of working, so ABW provides all these variations of options for the satisfaction of most.

<sup>1</sup> Simpson, A. (2019). Workplace isolation. Why employees feel it (and how you can fix it). [online] Workplace by Facebook. Available at: <https://www.facebook.com/workplace/blog/workplace-isolation>

<sup>2</sup> Arundell, L., et. al. (2018). The Impact of Activity Based Working (ABW) on Workplace Activity, Eating Behaviours, Productivity, and Satisfaction. [online] National Center for Biotechnology Information. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5982044/>

ENTER

# company visits

We had the great opportunity to visit two furniture companies - Kinnarps and Martela - that introduced us even more precisely into the world of ABW. They are the suppliers of some major companies and help them with integrating ABW. One of these customers is IBM, where we could see how the change in the way of working looks in reality.

It was a very instructive experience to visit these three companies. It not only helped us to proceed with our study, but it gave us the opportunity to further develop ourselves professionally. It was a new and valuable experience for all four of us. We soon noticed that our approach before the visit was very smooth and efficient. Before we visited the company, we made sure we had gathered enough information about the company and prepared some questions we would like to ask.

In this way, the meetings always went very smoothly and we also showed our interests. During the visit we got a lot of information and afterwards we selected the most important specifications for our further investigation.

The three companies also gave us a different perspective of their way of thinking about workspaces. As a result, we have been able to collect a lot of information from various perspectives. All the companies were also very enthusiastic and interested in our project. Therefore, they are very curious about the end result and would like to attend our final presentation

# Kinnarps



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Kinnarps is a company that sells furniture but what really makes them standing out from other furniture companies, is that they also sell a service. By doing so, they investigate the working style of the company for fifteen years and, then, they consider the employees' opinions and behavior to help them define the type of spaces and amount of furniture required in the future. They have created the "Next office" term which is based on ABW. Kinnarps defines this strategy as a working method rather than a workspace.

Their building is designed for to be used them as their own working places, but at the same time, they can also use it as a showroom for their customers. They have different types of options for the "Next office" representations and make it easier for them to visualize the different arrangements. One of the first things they say to their customers is that the perfect office does not exist, but it all depends on the people being part of the company.

In this company, Activity Based Working is not implemented for everyone, since every company has a different method of working. They make and emphasise on the importance of employees having the freedom of choice, because everybody has a different way of working, for example; varying concentration levels and individual work activities. Therefore, they find it important to divide the spaces depending on the work activities.

These are high concentration, low concentration, collaboration and individual. Finally, they consider the chill zones are also part of the working spaces because that is also a way of working. It is important to make your employees always feel comfortable and at the same time improve their productivity and efficiency.



Figure 11. Kinnarps' common area



Figure 12. Kinnarps' furniture

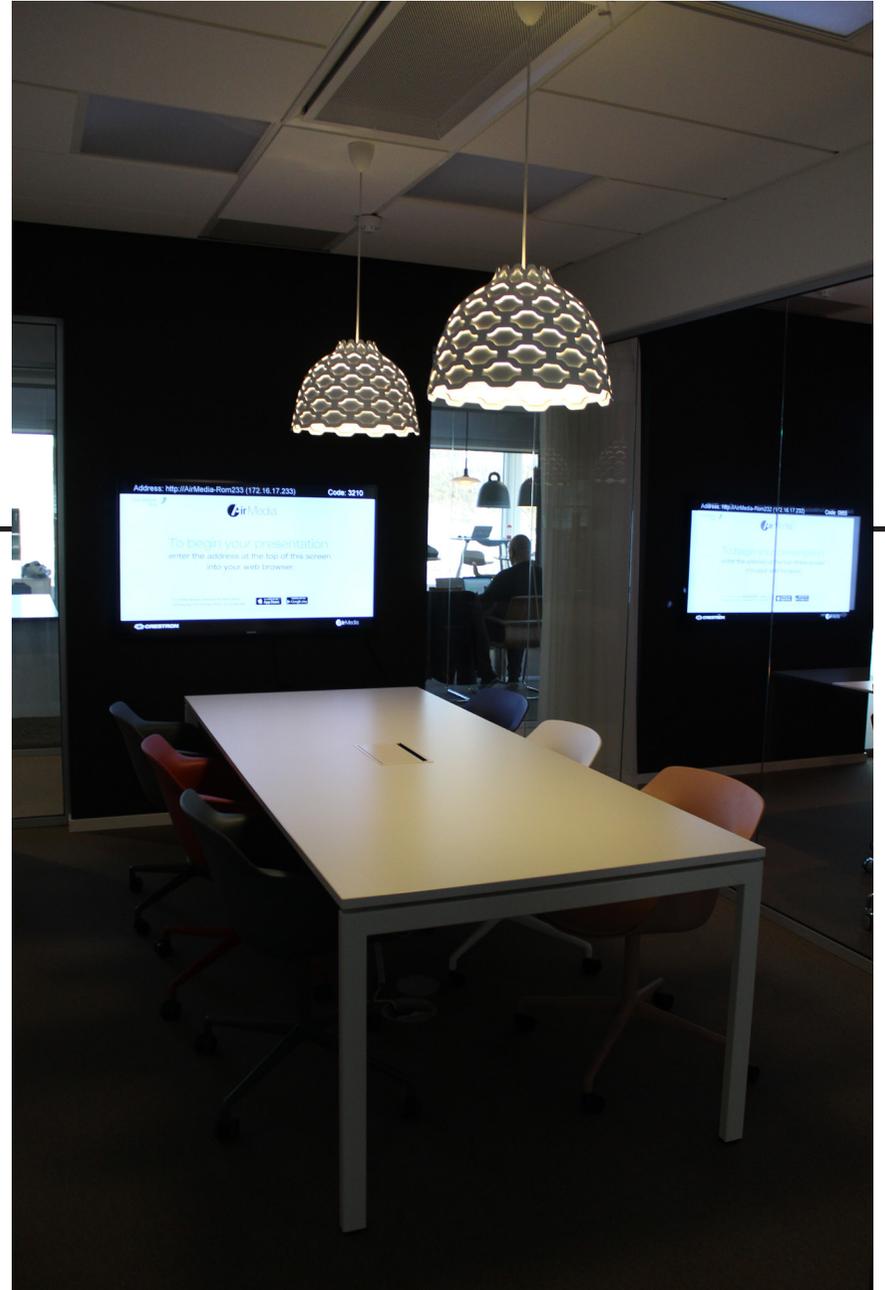


Figure 13. Kinnarps' meeting room



Figure 14. Kinnarps' resting area



Figure 15. Kinnarps' furniture



Figure 16. Kinnarps' working area

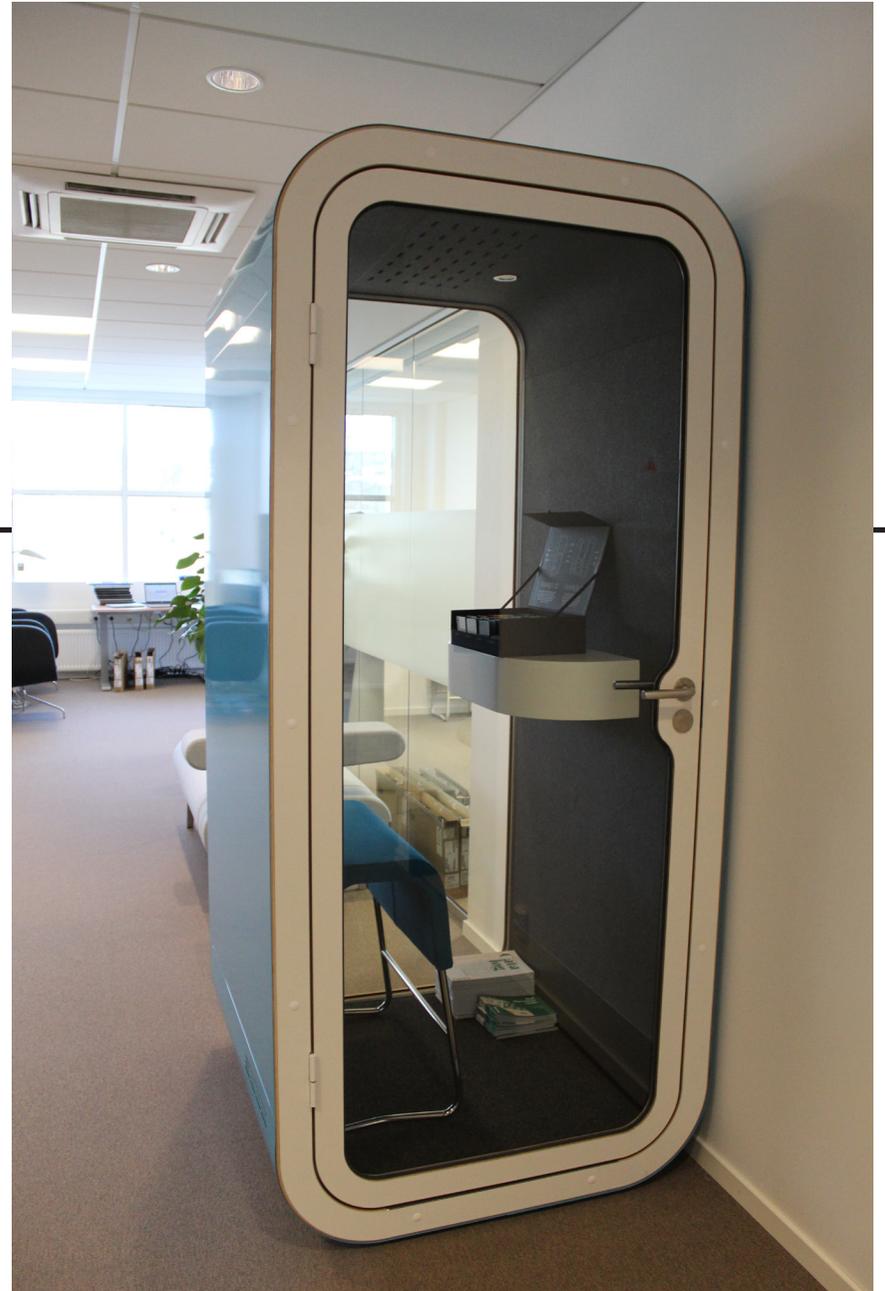


Figure 17. Kinnarps' telephone cabin



Figure 18. Kinnarps' working area



Figure 20. Kinnarps' furniture



Figure 19. Kinnarps' resting/meeting area



Figure 21. Kinnarps' furniture



Figure 22. Kinnarps' meeting area



Figure 24. Kinnarps' working area



Figure 23. Kinnarps' resting/meeting area



Figure 25. Kinnarps' furniture



Figure 26. Kinnarps' working area



Figure 28. Kinnarps' working area

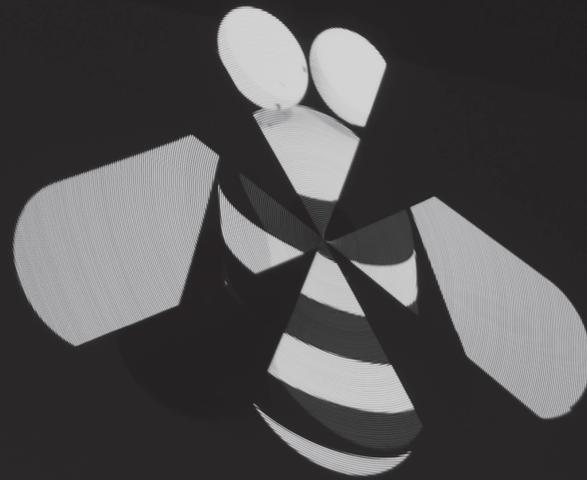


Figure 27. Kinnarps' common area



Figure 29. Kinnarps' working area

**IBM**



IBM is an IT company from the United States of America founded in 1911. In 1935, they expanded to Norway and established a subsidiary there. For many years the headquarter was in a large building outside of Oslo. The administration decided to move into a new location in the centre of Oslo, because the old headquarter was difficult to reach. It had an old-fashioned design, this meant needed an update to attain more efficiency and motivation. Besides this, they suffered from a lack of communication since the separate departments all had their own areas and they rarely collaborated within each other.

The new building is far smaller than the old one but it is designed for Activity Based Working. Before the relocation, the company and its employees needed to be observed in order to figure out how they operated and what they required. One acclaimed way to do this was surveys, the surveys asked the co-workers about their usual ways of working. This is crucial because ABW is not for everyone and it must be developed differently for each company.

IBM Norway threw their employees in at the deep end regarding ABW. They had an immediate change to a new way of working. The biggest problem is that people are afraid of changes. Especially the older ones, they did not want to give up their own offices. They thought this meant that they were forced to arrive at work very early in the morning to get a place.

But gladly, these fears remained unfounded because, with ABW people can work everywhere. Particularly through the new technologies today, employees just need to choose an empty space where they can put their laptops.

In the beginning, the employees had problems with engaging interactions. IBM solved this simply by handing over name tags including also the department. Knowing each other's names made it easier to open a conversation.

Today not even the executive boards have their own offices, only the legal department and this is because it is necessary for legal requirements.

At IBM they claim that they do not need a meeting room to have a meeting. In a non-concentration area people can just sit down at a table together and collaborate.

When arriving at work, people put their jackets in the cloak area, this gives a cleaner presentation throughout the the workspaces. Within the working area, people often just walk around with their laptops. Because of the 'clean table' policy people usually do not bring too many things from home; they are forced to evaluate what they really need.

The middle section of the building is where the social area is located - it is where everybody passes. There are some plants, coffee machines and even a billiard table for the employees.

IBM also does some tests on new furniture and areas, e.g. a special table with a kind of roof which makes the occupants feel like they are in a closed room. Furthermore, they have some meeting rooms with swing seats for short creative processes. This environment immediately encourages new customers into a conversation.



Figure 30. IBM's coffee machine and wardrobe



Figure 31. IBM's wardrobe

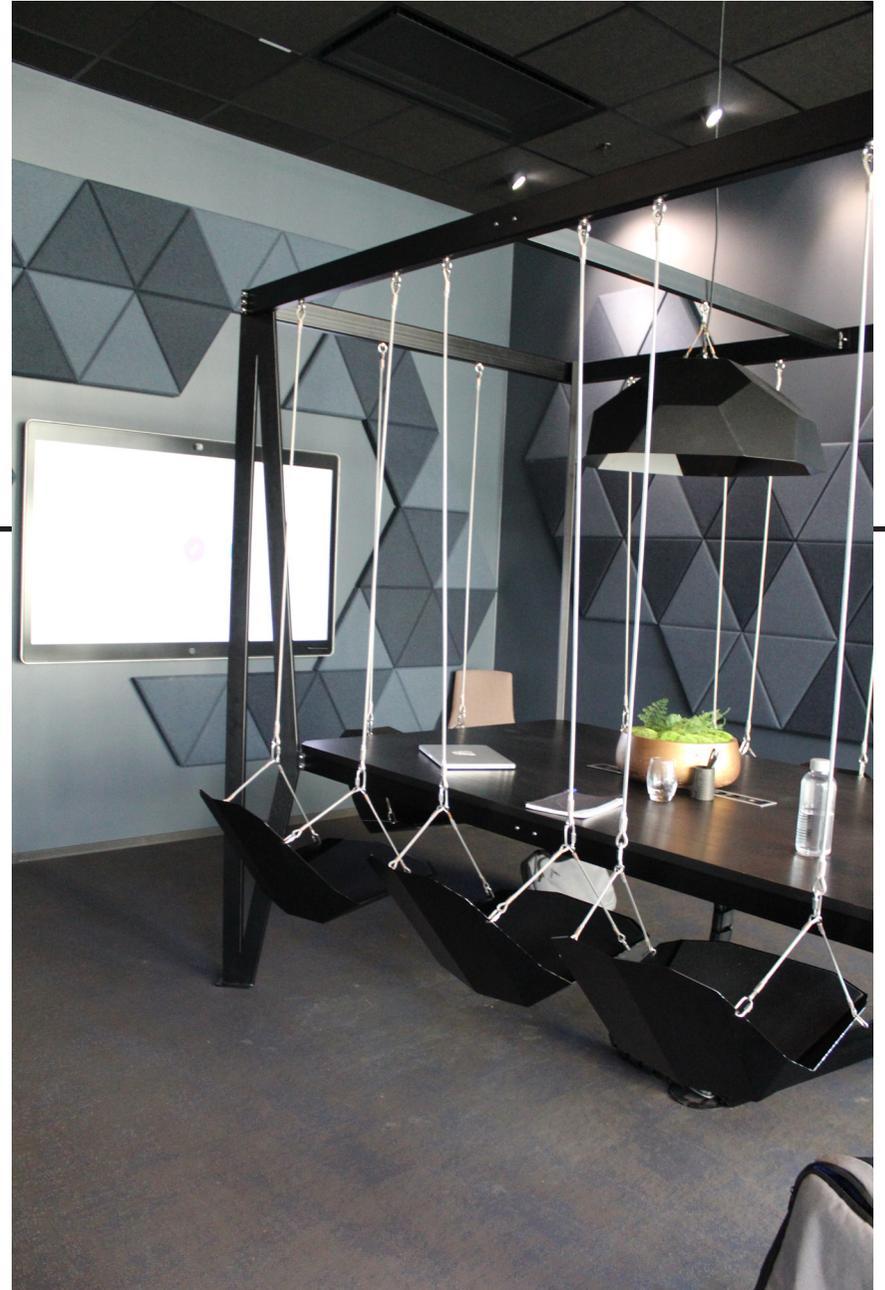


Figure 32. IBM's meeting room



Figure 33. Vertical garden



Figure 35. IBM's common area



Figure 34. Recycling bins



Figure 36. Storage units



Figure 37. IBM's resting area



Figure 38. IBM's meeting unit

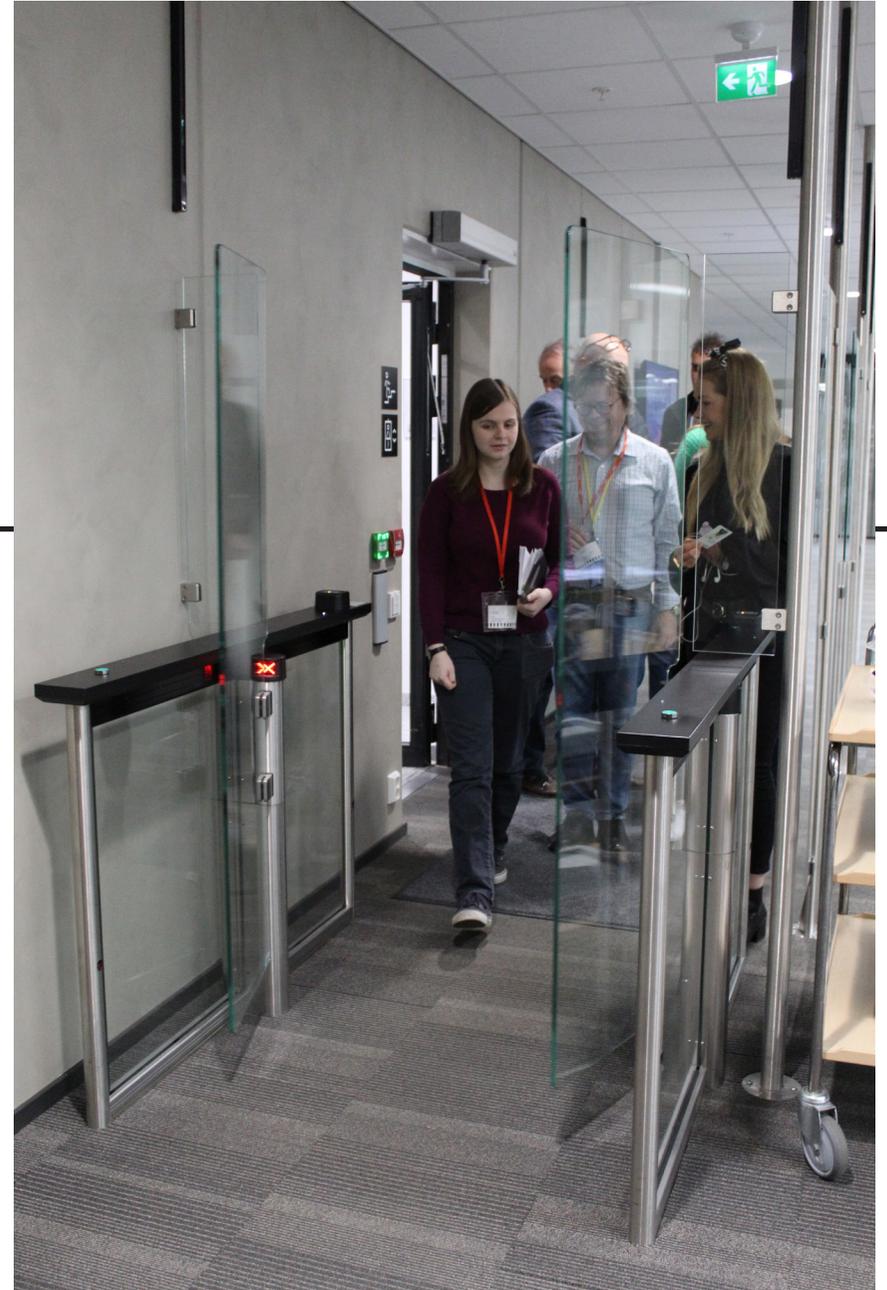


Figure 39. IBM's entrance access



Figure 40. IBM's working area



Figure 42. Meeting desk



Figure 41. IBM's meeting units



Figure 43. Meeting display



Figure 44. Stools



Figure 45. IBM's resting area and meeting rooms



Figure 46. Meeting desk



Figure 47. Meeting unit



Figure 49. Storage units



Figure 48. IBM's common area from above



Figure 50. IBM's "garden" detail

**Martela**



66

Martela is a Finnish company that started in 1945 creating furniture out of Finnish wood. Nowadays, they have developed their business and they also deliver services instead of only a physical product. It is very important for Martela to deliver a full package of services to their clients because they consider the well-being of their clients' employees are fundamental. For example, their main idea is based on the slogan "Thank God, it's Monday", which means they want the employees to look forward to going to work.

During the meeting they explained us that Activity Based Working is not suitable for every company. They offer a survey before, which must have an answer rate above 97%. Referring to the results, Martela will design suitable workspaces for their customer which are categorised into four different types of zones: Concentration, Collaboration, Communication and Chill Out. These four C's are not established; they change based on the company's needs.

During the developing process, Martela always follows four steps. First of all they start with the specification which directly leads to the planning. Next, they implement the new workspaces, but it is not done yet, because they always keep in contact with the company for continuous development.

One of their main collaborators is the architecture studio Zinc. Together they create a logical union between furniture and space for companies and universities. Recently, OsloMet became one of Martela's clients, which made the visit even more interesting.



Figure 51. Working area



Figure 52. Meeting room



Figure 53. Martela's furniture



Figure 54. Resting area



Figure 56. Meeting room and unit



Figure 55. Working units



Figure 57. Martela's furniture



Figure 58. Martela's furniture



Figure 59. Martela's office technology



Figure 60. Martela's furniture



Figure 61. Martela's smart storage units



Figure 63. Meeting room



Figure 62. Martela's smart storage units



Figure 64. Meeting desk



Figure 65. Meeting room



Figure 66. Martela's telephone cabin



Figure 67. Working area



Figure 68. Working units



Figure 70. Working area



Figure 69. Martela's furniture



Figure 71. Martela's furniture

# data compilation



# lab tests

During the 7th week of the EPS program, a series of tests have been conducted in order to compile the data necessary for the criteria in the new workspaces' templates.

We prepared five different work situations in our lab, as possible workspaces that could exist here in OsloMet, and a template of questions about desks, chairs and environments and about the measurements of these elements. Our test participants were students and teachers from the University between 20 and 63 years old.

In this test, we also considered the type of activities each participant realized mostly during their work day. Most activities were described as computer work, researching or reading which require more concentration and privacy. There were also some other alternate jobs like sketching or social activities which requires more open spaces and often occupied more space to feel comfortable.



Figure 72. Set-up in front of the window

Workspace for only one person with a regular window on the front of it. Both the desk and the chair can be regulated to the person's height. There is a heater below the desk. The desk has straight borders.



**in front of a wall**

Figure 73. Set-up in front of the wall

In this arrangement there is another person behind the participant, not necessarily a colleague working on the same topic. There is a window on the left and a close wall on the right. Both the chair and the desk can be regulated to the person's height.



Figure 74. Set-up shared, with a wall

It is a shared open office in which a wall separates the two workspaces, this means that both users will not see each other. The wall is a screen, so it does not isolate the user. There is a window to the rear. Both the chair and the desk can be regulated to the person's height.



Figure 75. Set-up shared, without a wall

It is the same office as shown in the third display but without the wall separating both users.

shared without a wall



Figure 76. Set-up hexagonal table

It is a shared open office in which there are no walls between the different people working there. Only the chair can be regulated to the person's height.

# tests results

After the tests we could clearly conclude that every person has different needs, depending on their personality, their culture, their work activity and many other factors. With this test results, we were able to observe that there is no measurable factor that could estimate the decisions of the user. There is no pattern to follow to be able to give the right amount of space for a person because everybody needs different things. As there were so many variations in opinions about the environments and the workspaces accommodations, there were also many others that had things in common. For example the belief that "The more adaptable a product or an environment, the better". Many commented this during the test, hoping this is taken into account and aids in creating products or environments that allow the user to modify them as much as they want.

## ITEMS

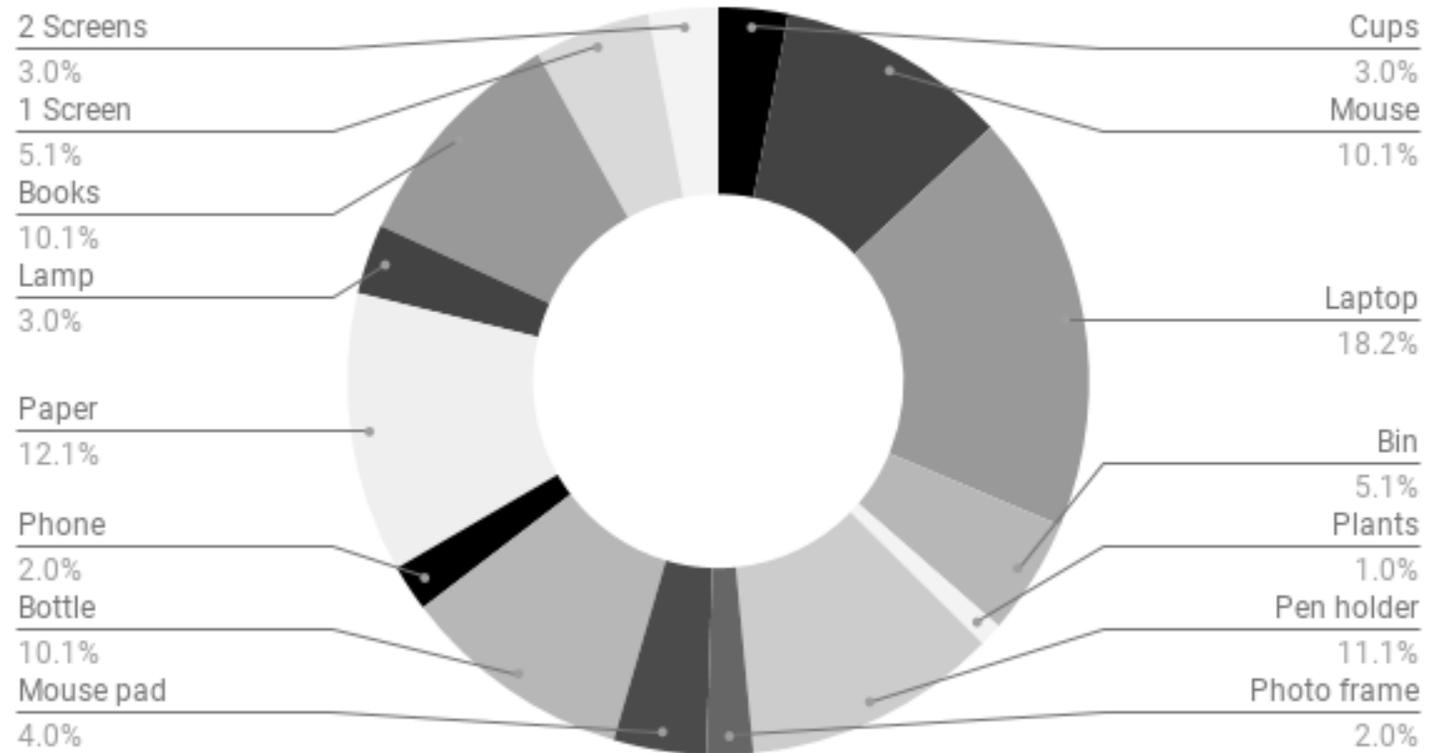


Table 2. Items test results

We provided seventeen different items that are often found in workspaces for our participants to choose.

Everyone picked a laptop because this is an essential element of working today. A computer is indispensable in most kinds of working today and a portable one offers new possibilities.

The second and third place reached with twelve or eleven users the paper and the pen holder.

None of our testers needed a charger or an extensor at all. Even though every participant had a laptop, some also wanted to have further screens. Five people chose to have only one additional screen but three persons wanted to have two more.

### Satisfaction

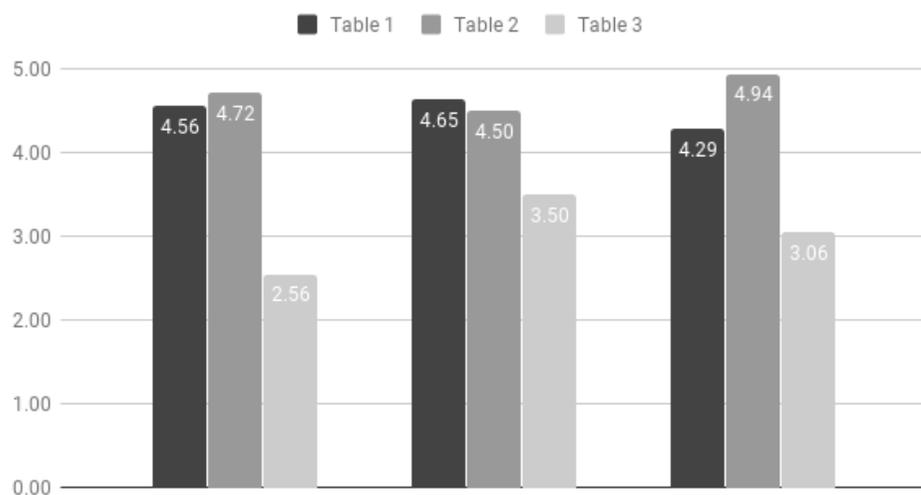


Table 3. Satisfaction table

Most of the people preferred the second table, because they liked the curved shape and the material. A large negative factor is the tube for the cables under the table top, because it was uncomfortable for one's knees. Only one person found the second table too big and disliked its shape.

### Tables' height

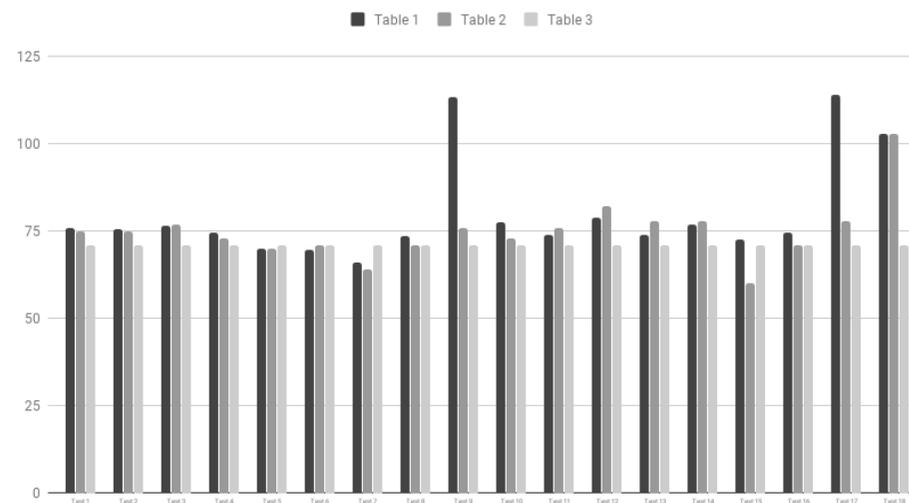


Table 4. Tables' height

The last table was the least favourite because of the limited space, the lack of height settings and the working face-to-face with other people. But it would be the perfect table for meetings where communication is necessary.

In general we can say that tables need to be height adjustable because every person prefers a different height.

# chair results

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## Satisfaction

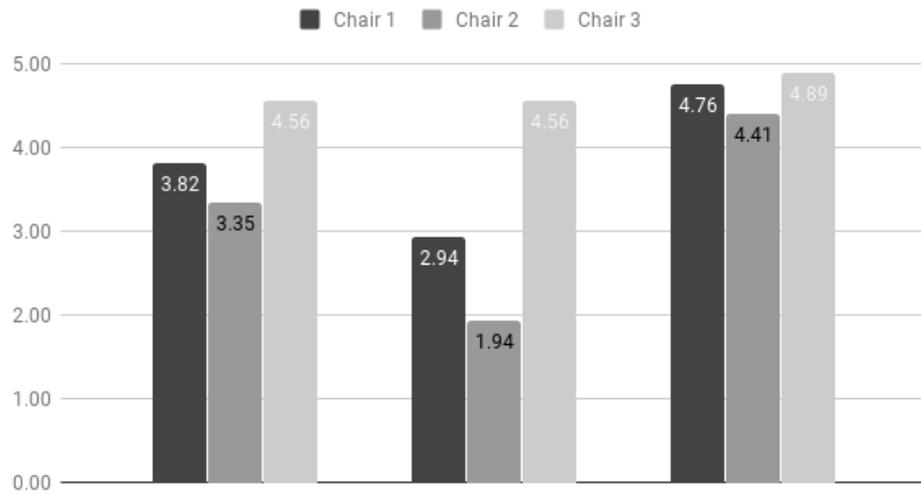


Table 5. Satisfaction chair

## Chairs' height

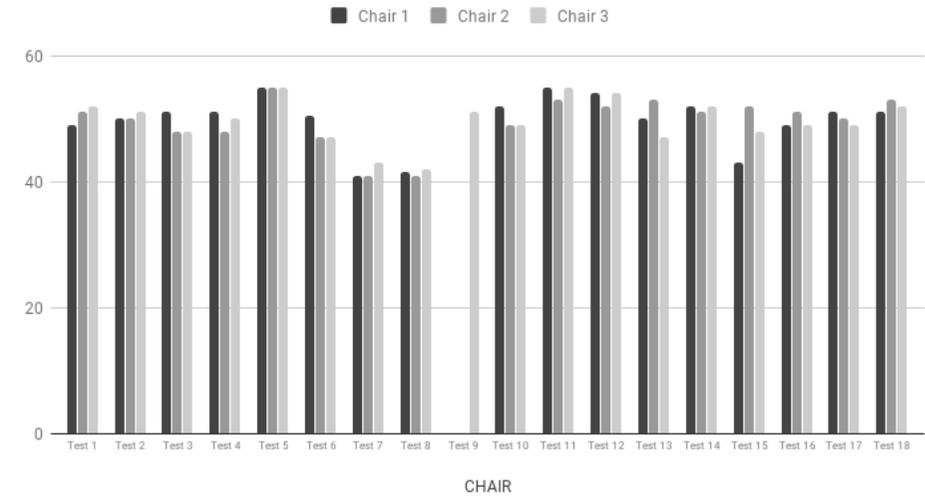


Table 6. Chairs' height

Nearly everyone preferred the third chair because of its comfort and width. Also, they appreciated the armrests for the relief they offered. The third chair allowed alterations to the backrest, the seat and armrest.

The first chair was not that good, but it was still sufficient to work. The second chair was subject to criticism for its insufficient width. Also, there were a few tests in which the participants chose not to use a chair at all.

Spaced used at desk

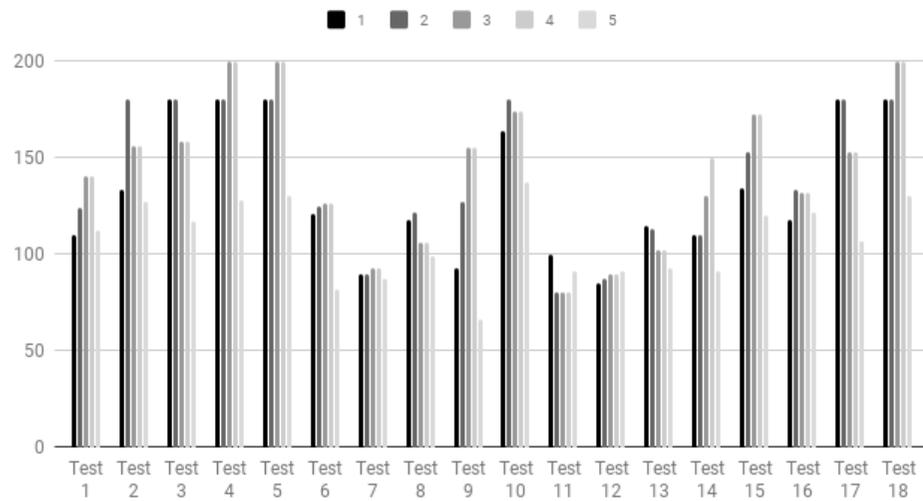


Table 7. Space used at desk

Satisfaction

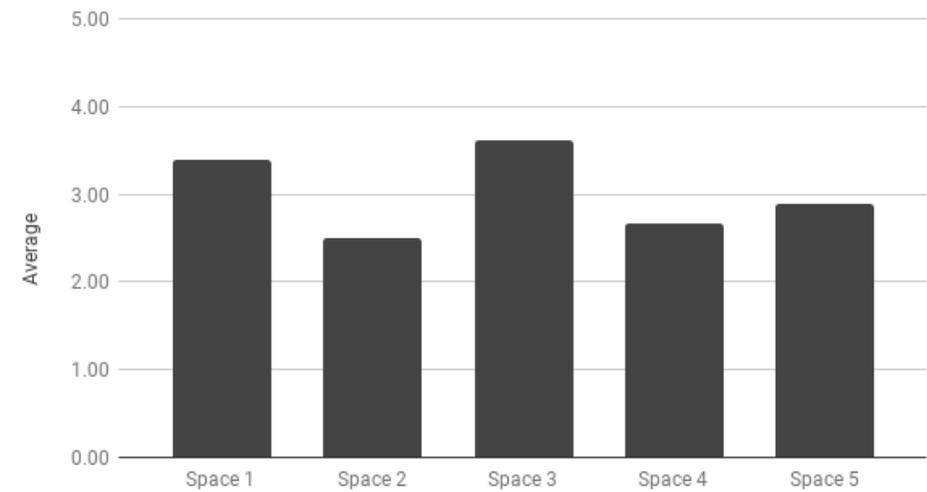


Table 8. Space satisfaction

It is generally agreed that natural light is necessary, but there are some conflicts of opinion on the positioning of the window. There are people that dislike the front and side position because it can distract them and others that dislike the rear position because it can cause reflections/glare on the screen.

Referring to space, people prefer to have more, but if we give them too much they tend to spread their items, using the whole table.

For the majority of participants, it was a negative characteristic to have someone working behind them. But when it came to having someone to their front, opinions were really different: there were some that were distracted by having people in front of them, but there were others that preferred to see the person who was sitting next to them.

In general, people disliked the environments where they had to work surrounded by other people, unless they had to work with them. We can see that in the satisfaction graph, where the 3-worst evaluated were the ones shared.

## wall results

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### Distance back wall

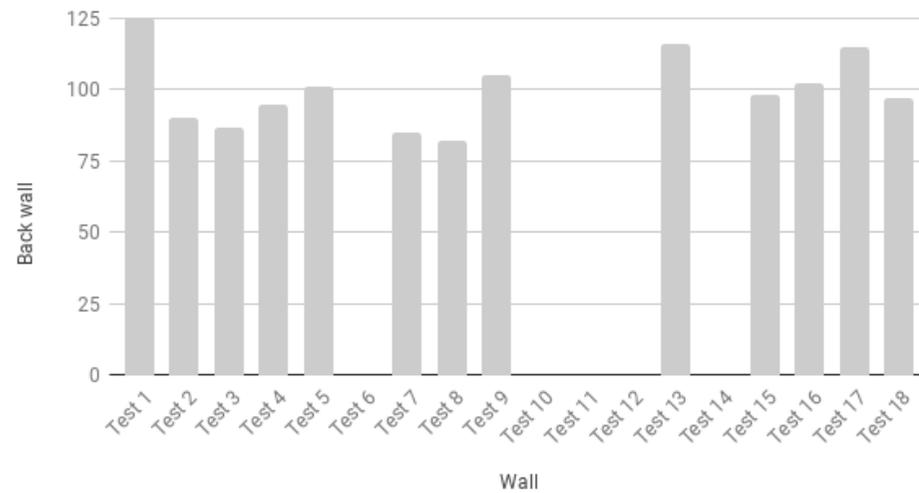


Table 9. Distance back wall

Regarding the wall, there were a few disagreements; there were people that wanted it to be low, others high, others just wanted “a limit for their table” and there were others that wanted to be able to see through.

During the lab testing, two types of walls were tested. In one set-up, a wall was placed next to the desk. The test person was allowed to move between the distance of the wall and himself. In the results, we found that this distance was an average of 125.06 cm. In the other setup, a wall was placed behind the test person.

### Distance side wall

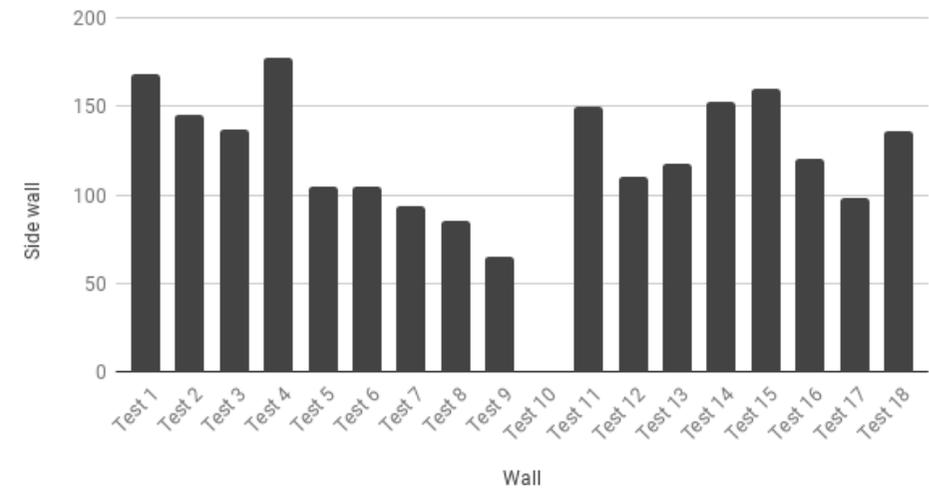


Table 10. Distance side wall

We found here that the average distance was lower, about 99.85 cm. This was mainly because the test person could not actually see the wall. Most of them wanted more space so that they could move their seats easier.

## Side wall and Back wall

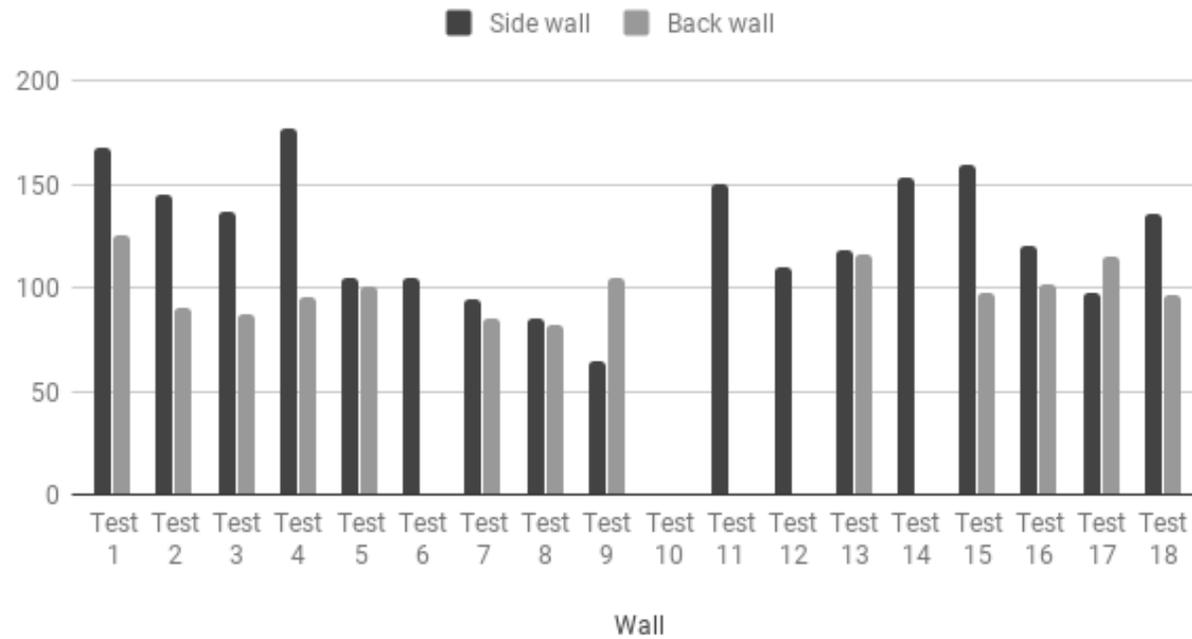


Table 11. Side and back wall

*"I don't like that I have to face the wall, it gives me the feeling that I am sitting in a box. Also having my back to someone is unpleasant. I think it's important to have some natural light around me, a window would make much difference"*

Test person 3, student OsloMet

*"Natural light is great! But, sitting in front of a window can disturb, because of the direct sunshine. I would prefer to have a window next to me."*

Test person 6, student OsloMet

\*For further information, go to attachment page 178

## Final results

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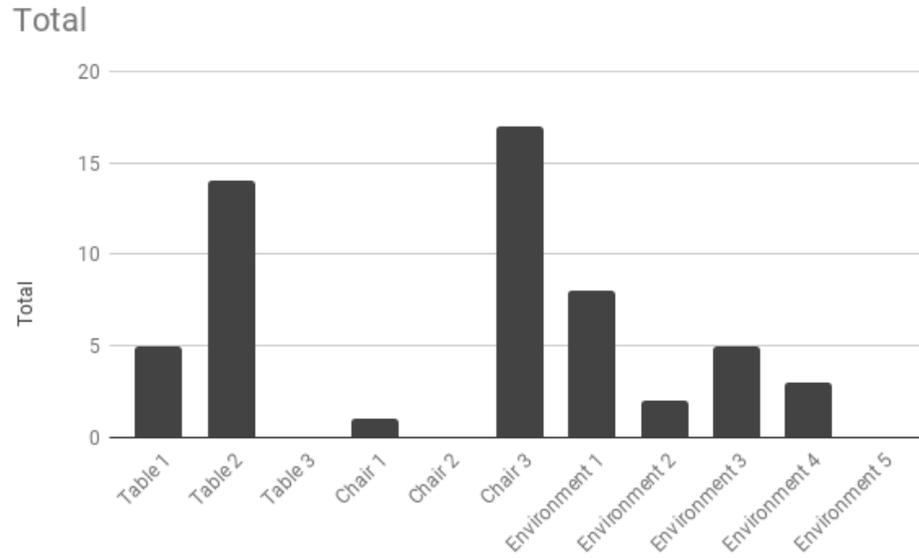


Table 12. Total test results

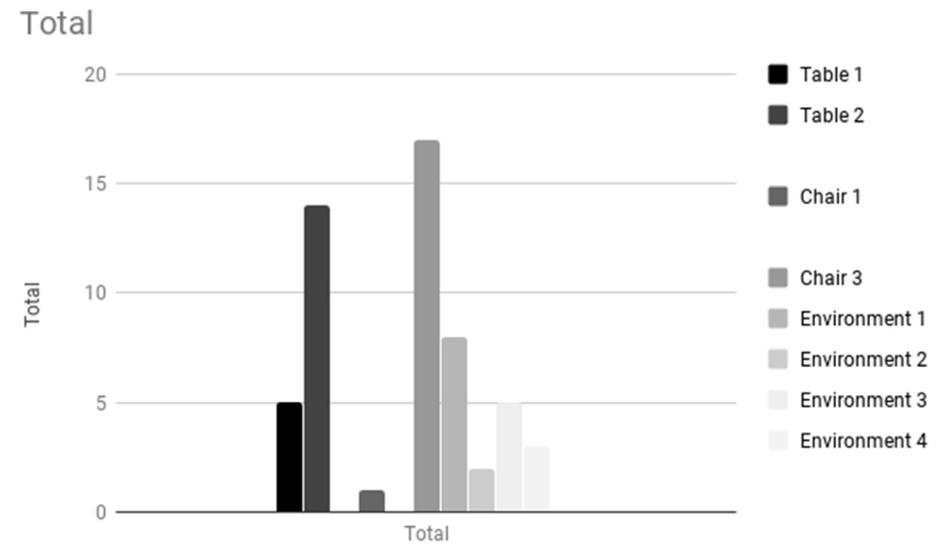


Table 13. Total test results 2

At the end of the tests, people were asked about their favourite desk, chair and environment. Based on the results, we clearly see that the second table was the most preferred. In particular, the wooden desk with the curved edge. This gave most test subjects the feeling that they had more space. The material and colour of the table was also appreciated.

The winning chair was clearly the ergonomic office chair. This chair provided good support for the back and arms. This chair could also be adjusted to any size.

The desk with a view of the window was the most preferred, but also the environment with the wall between the two desks was very popular. This was not only because of the desk, but this area gave the people the feeling that they had more space.

In conclusion, we could not determine a regular pattern for the measurements. This shows one again that furniture has to be adaptable to the users' demands.





# Humanscale 4/5/6

## 2 Humanscale Seat

## 3 Humanscale Handicapped and Elderly

# Humanscale 1/2/3

## 1 Humanscale Body Measurements

A Periodic of Information  
A Guide of People  
A Series of Considerations  
A Preparation for the  
Handicapped and Elderly

Authors:  
Alan D. Dillman  
Alan B. Tilly  
Designers:  
Henry Dreyfus

# humanscale

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We have used the reissue of Humanscale created by the IA Collaborative (a global design and innovation consultancy). Originally the information was published by the firm Henry Dreyfuss Associates between 1974 and 1981. The Humanscale is a reference guide for designing objects, interactions and environments for humans.

Since the data from the humanscale was published between 1974 and 1981, we need to take into account that today the sizes are larger. We will use this portfolio more as a guideline during the research.

We will compare the information in the humanscale map with the result of the lab tests and an anthropometric database DINED. Dined is a database of measurements of the human body. It provides an overview on how anthropometric data can be used when facing design challenges. Additionally, a set of free tools makes it easy to explore, compare and utilise anthropometric data in your projects.

# comparison

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92 After the lab tests, we have consulted anthropometric data in the Humanscale portfolio and DINED. We found it interesting to compare the results of the lab test with the measurements given in the online anthropometric database. In this way we can determine some dimensions more specifically. During the lab tests, we determined a few measurements that were completely different for everyone. One of the reasons was because our test persons had different sizes, which made the research interesting. In total 18 tests were done, with students and teachers from 20 to 63 years old and with heights between 152 and 192 cm, who are usual users of OsloMet's workspaces.

We obtained a lot of information from the human scale data, but unfortunately everything is not that usefull because it is already an old database. When we compare the lab test measurements with the antropometric database, we can determine that the data are not always similar. This shows once again that it is important that the furniture in the working environment is adaptable to the users' desires. This information shows once again that it is important that the furniture in the working environment is adaptable to the user's wishes. It is interesting to use the data and to determine the extreme dimensions. This allows every user, with a large or small size, to adjust his furniture optimally.

**120 - 300 cm**

Social/Consultative distances  
between people

**32° - 45°**

Comfortable viewing zone for  
person seated at work table or  
desk

**25,4 - 30,5 cm**

Distance from work table to  
seat

**34,5 - 52,3 cm**

Adjustable seat height for  
adults

**67,3 - 78,7 cm**

Adjustable desk height

**91 - 183 cm**

Acoustic walls should be behind  
the operator





**project development**  
2. conceptual design

# moodboards



# explanation zones

After our precise research, we decided to develop our own kinds of zones for OsloMet. For In doing this we were inspired by the five kinds of zones (see above) and the four C's by Martela.

We tried to bring them together and ended up with four zones, divided by depending on the kind of working the employee is going to do activities to be done by the employees. Since we want our system concept to be memorable, we thought opted about for easily remembered names. The idea was to think about the workplace as a whole biotope for the employees: Cocoon, Symbiosis, Mutualism and Waterhole.

To enhance the feeling of having a real biotope, we want to make sure that all of our zones are sufficiently stocked with plants. According to Libby Sander, who is a lecturer at the Bond University "nature [...] increase[s] both self-esteem and mood, particularly among younger people."

Even if it would not be possible to include plants and natural light in every corner, simulations of environment "have also been shown to create positive effects, such as lowering heart rates and blood pressure."<sup>4</sup>  
For this reason we named our zones after different natural occurrences.

<sup>4</sup> Sander, L. (2017). Not just nice to have: nature in the workplace makes employees happier and healthier. [online] The Conversation. Available at: <https://theconversation.com/not-just-nice-to-have-nature-in-the-workplace-makes-employees-happier-and-healthier-80077> [Accessed 11 May 2019].

# Cocoon

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A Cocoon is the natural space that provides enough quietness and privacy for giving the best of yourself and focusing on what you are doing.

It offers the highest level of concentration for working in focus. It is an area with almost no noise and hustling around. People are able to work concentrated in there. The furnishing - e.g. ergonomic chairs - offer the possibility to stay in there for as long as needed.



Figure 77. Cocoon moodboard

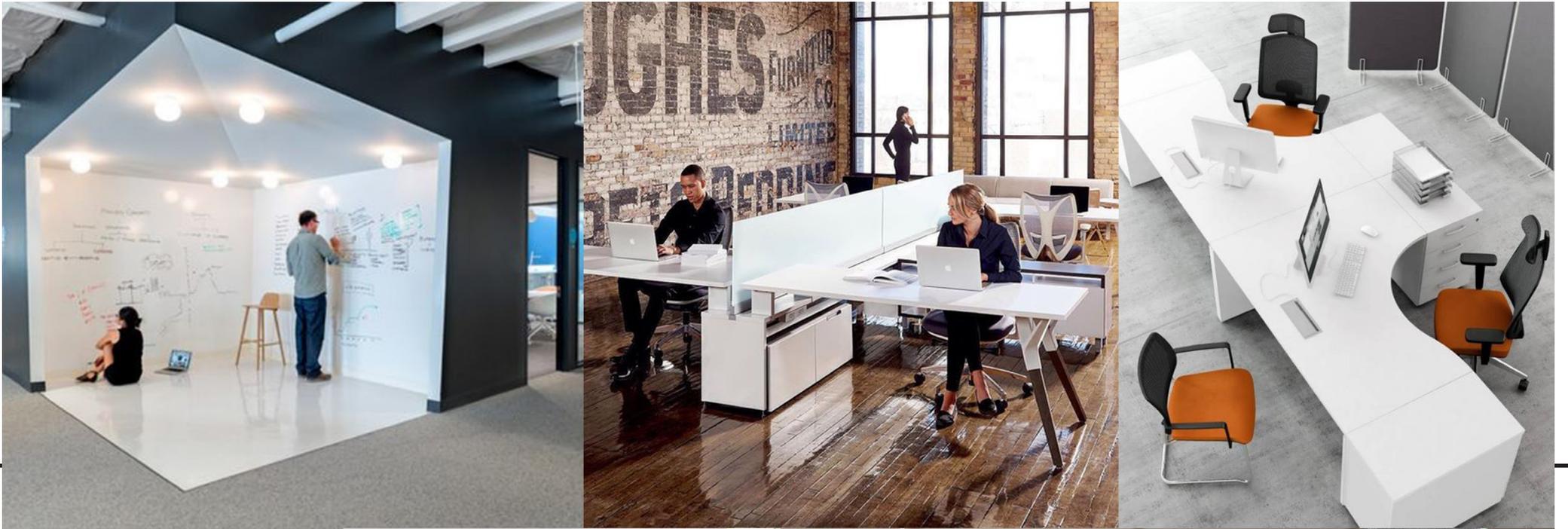


Figure 78. Symbiosis moodboard

# Symbiosis

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Symbiosis is the natural relationship between two living beings that benefit from each other.

101

This zone is quite similar to the Cocoon with the difference that it is made for small groups. People can book the space to have meetings without too many people being around. On the other hand it can be used by people that work mostly alone but need to talk about the task or compile their information often. It is necessary to have screens and boards to collect and present data with the partner.

# Mutualism

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102 A mutualism refers to an interrelation between living beings of two species, from which both partners benefit, however it is not a matter of life or death.

Mutualism is the relationship between two or more persons which offers an informal environment for collaboration and semi-planned meetings in a flexible area. This area is not necessarily meant for working on the same task as the other persons in the room, but it meant to benefit both users in some way. This environment offers interesting or unusual furniture to make it easy to start a conversation with the other users. Besides the unique furniture, the accessibility to cosy couches, comfortable sittings are available to create a relaxed environment. Cupboards and shelves are also part of this environment to leave personal objects.



Figure 79. Mutualism moodboard

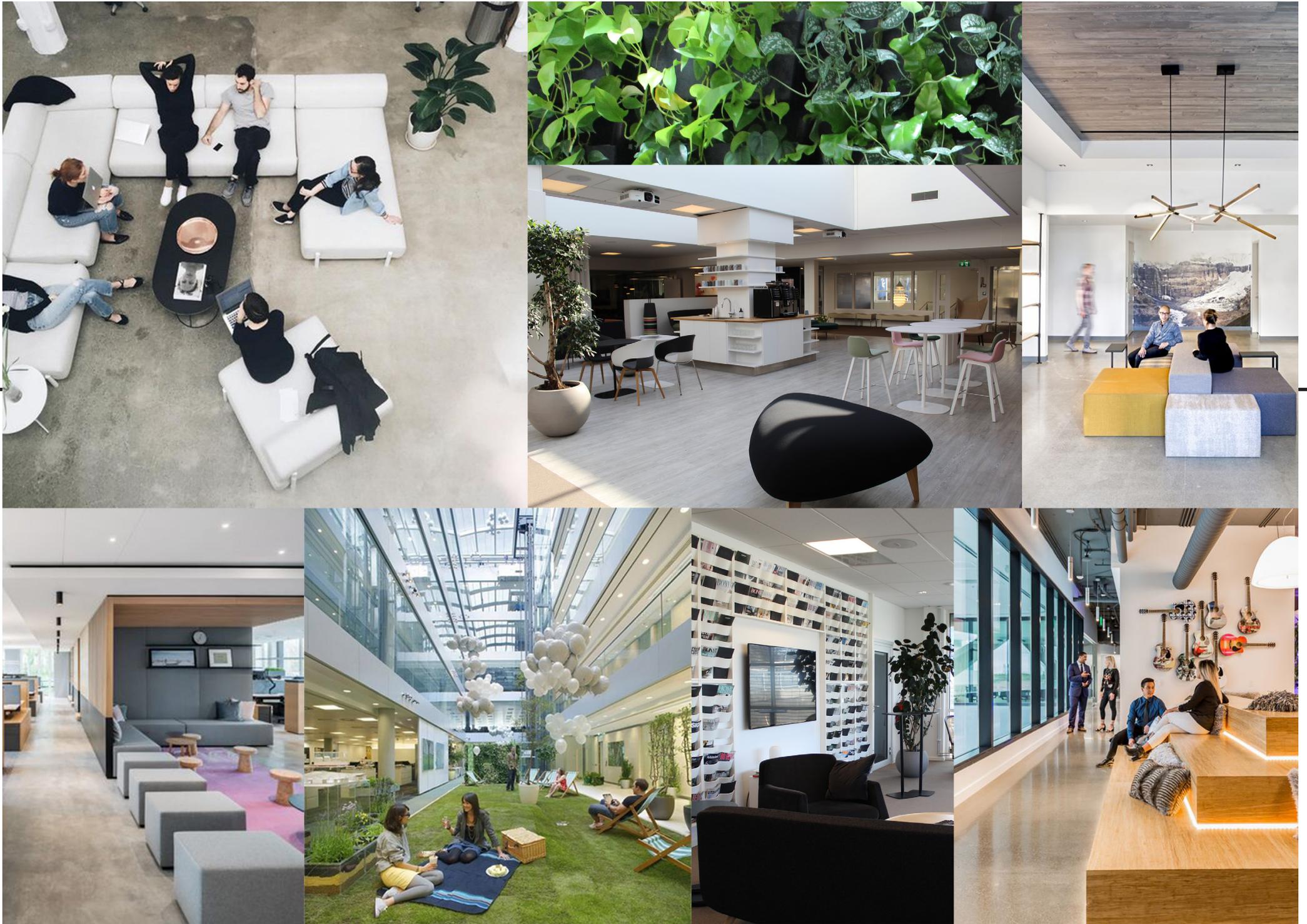


Figure 8o. Waterhole moodboard

## Waterhole

---

In the savannah a waterhole is the place where all the animals come together for drinking.

105

In order to rest for a short time, our Waterhole is the ideal area. It is a space in a central position in the building. The furniture is comfortable and welcoming for collaborating with the colleagues. The most important part here is the kitchen because eating creates a calm environment.

# first sketches

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After developing the OsloMet zones in theory, we needed to concretise them by drawing some sketches. Since everyone of us had different ideas on the concepts, we decided to draw separately and compared them afterwards.

The Cocoon and Symbiosis drawings were all very similar and it was uncomplicated to agree on the set-ups. All the Cocoons showed fairly small areas with a desk, a chair and whiteboards for taking notes. A Symbiosis does not differ much but it contains at least two desks and also big screens that can be connected to the computers for sharing information in a simple manner.

For Mutualisms we devised more designs, because there is more freedom in creativity. We thought about for example a table that hangs from the ceiling for short meetings in the hallway. As well the amphitheatre area is designed innovatively for larger meetings.

The most challenging tended to be the Waterhole, because an area that offers the possibility to calm down from working and collaborate with the colleagues can be constructed in many different ways. Thus we were not able to compile our ideas like we did before. That is why we used another method: everybody had a piece of paper and then we had five minutes to draw what we imagine of a Waterhole. When time was over we gave the paper to our partner counterclockwise and then we had again five minutes for refining the sketching.

Afterwards we had four different concepts of Waterholes and we agreed on the most important items that we finally integrated into our template.



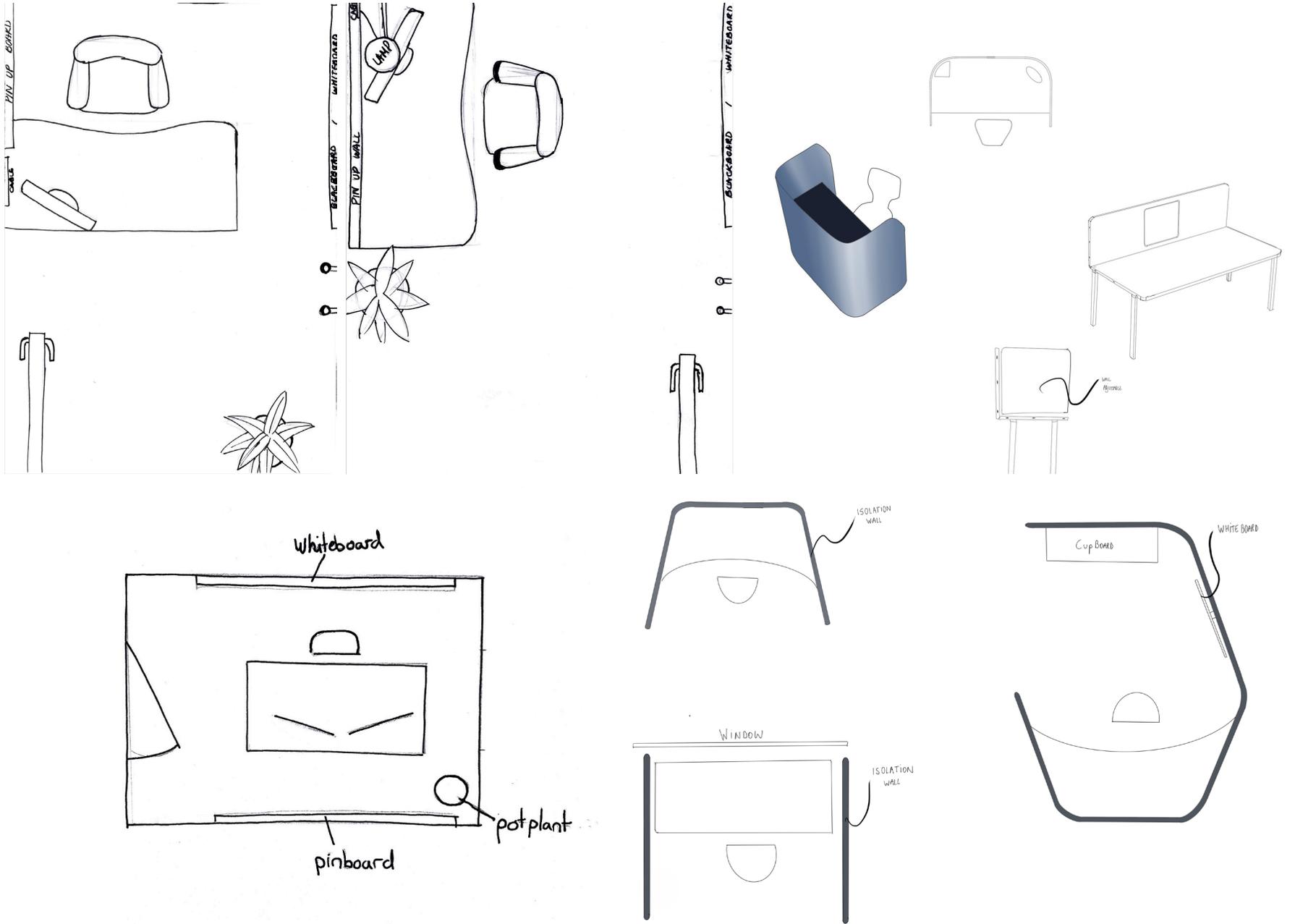


Figure 81. Cocoon sketches 1

S { room size →  
desk size →  
chair height →

M {

L {

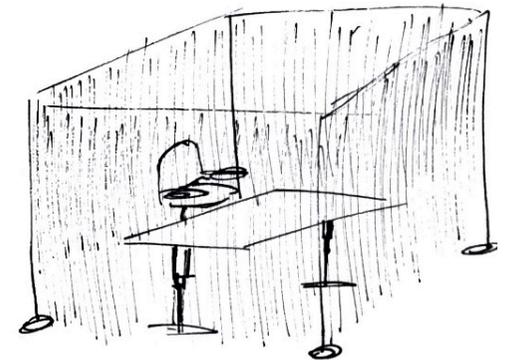
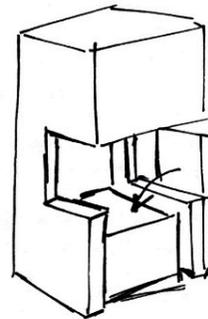
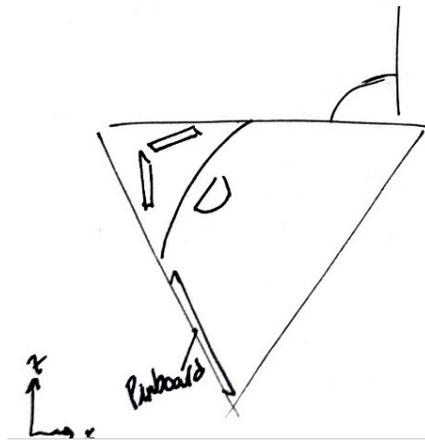
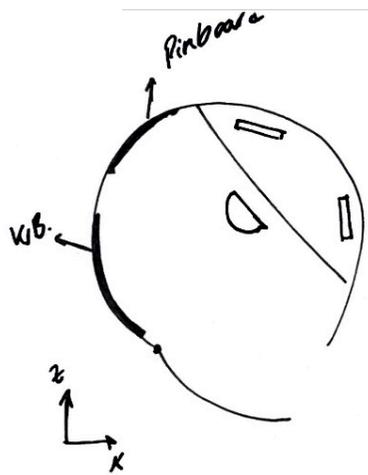
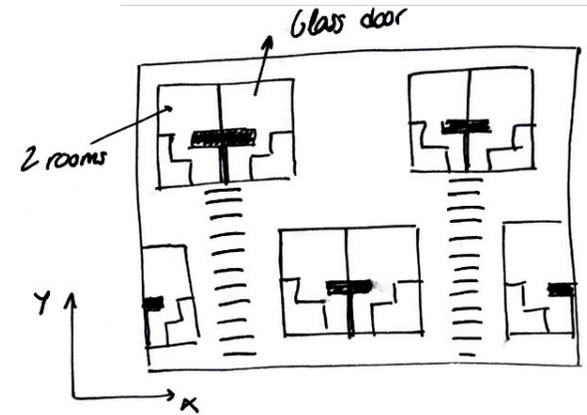
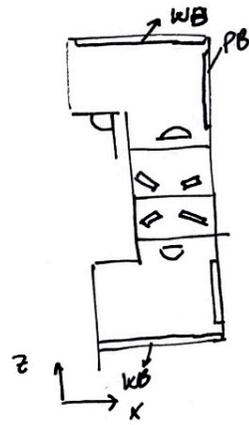
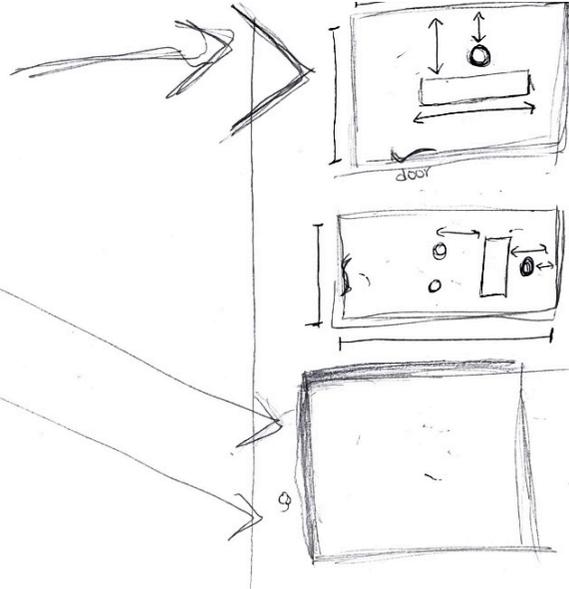


Figure 82. Cocoon sketches 2

# Symbiosis

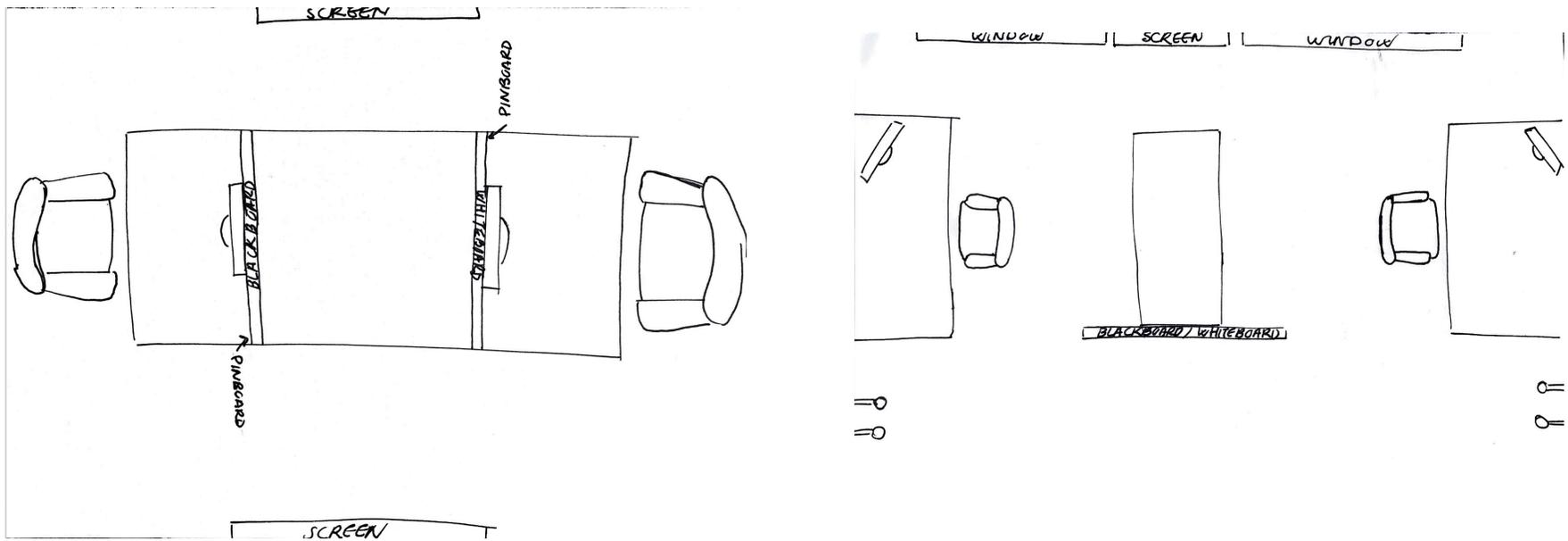
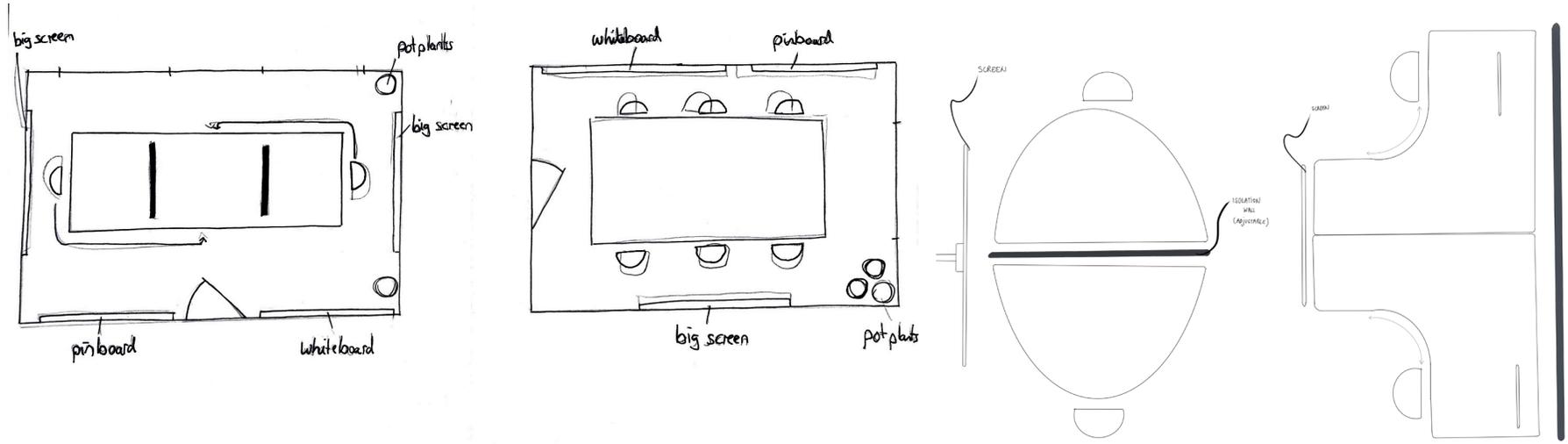
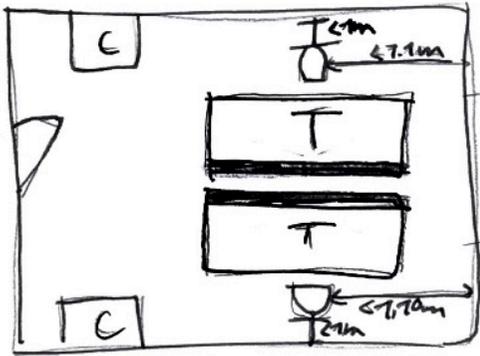
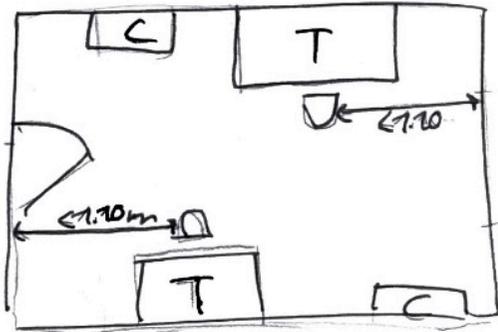
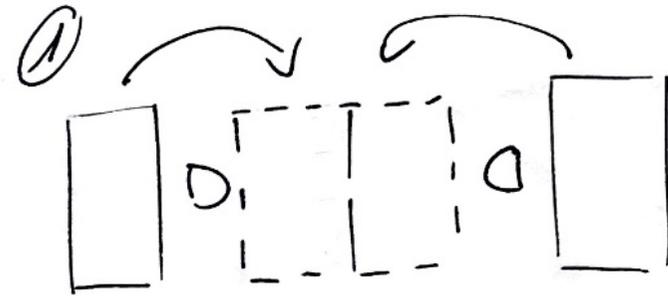


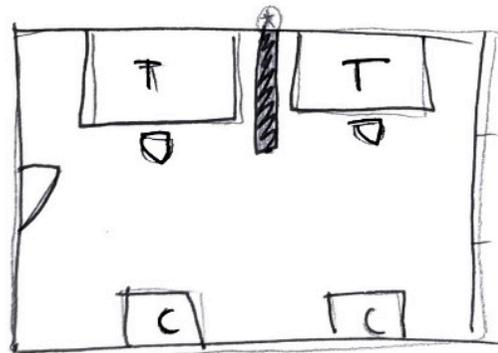
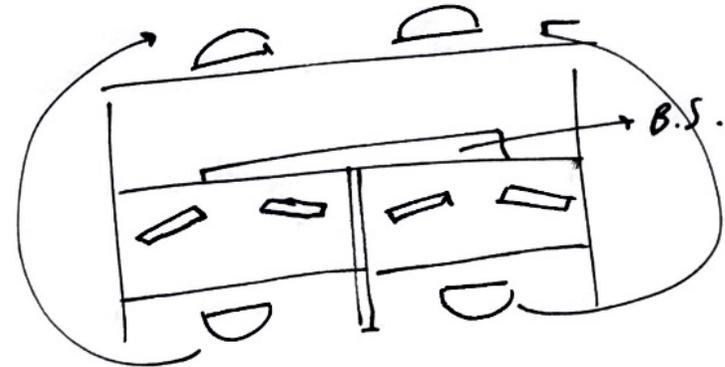
Figure 83. Symbiosis sketches 1



- working (more or less) together
- screens are height adjustable
- window at the side
- no person in the back



- private working
- enough space
- no person in front



- screen is optional
- no person in the back
- window at the side
- no person in front

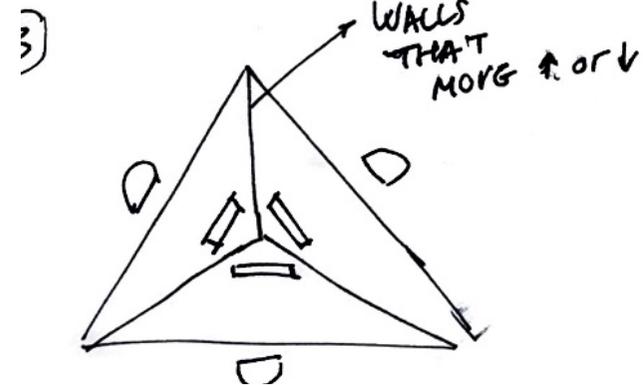


Figure 84. Symbiosis sketches 2

# Mutualism

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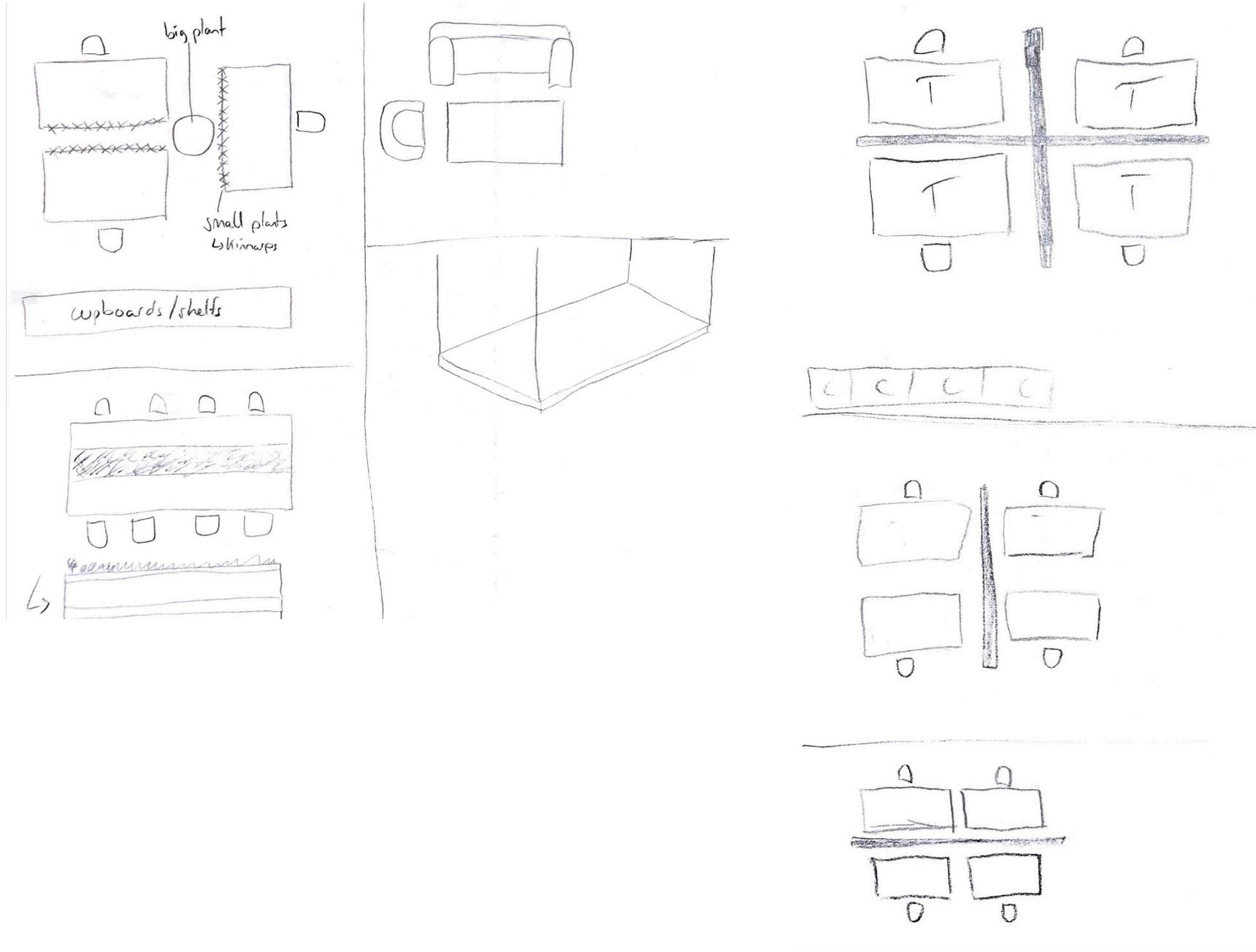


Figure 85. Mutualism sketches 1

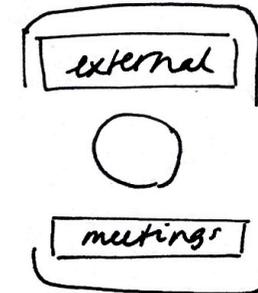
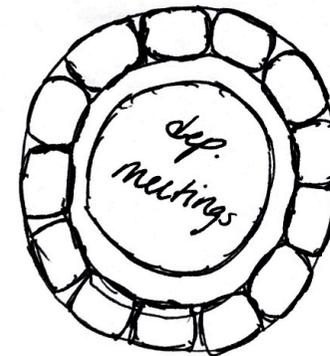
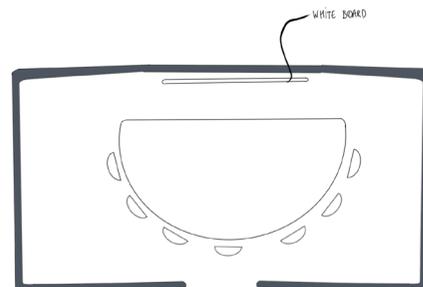
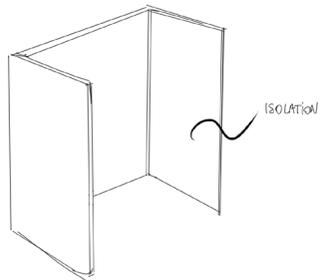
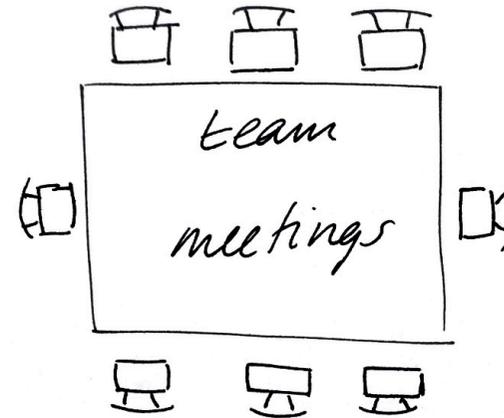
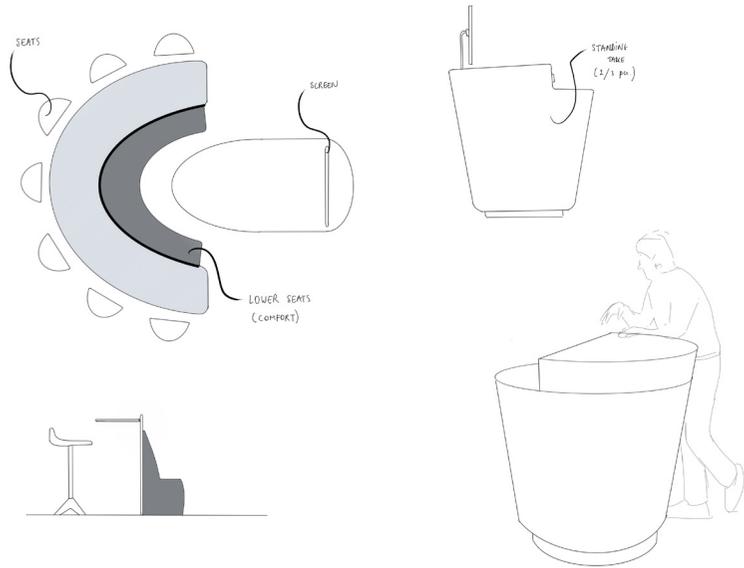


Figure 86. Mutualism sketches 2

# Waterhole

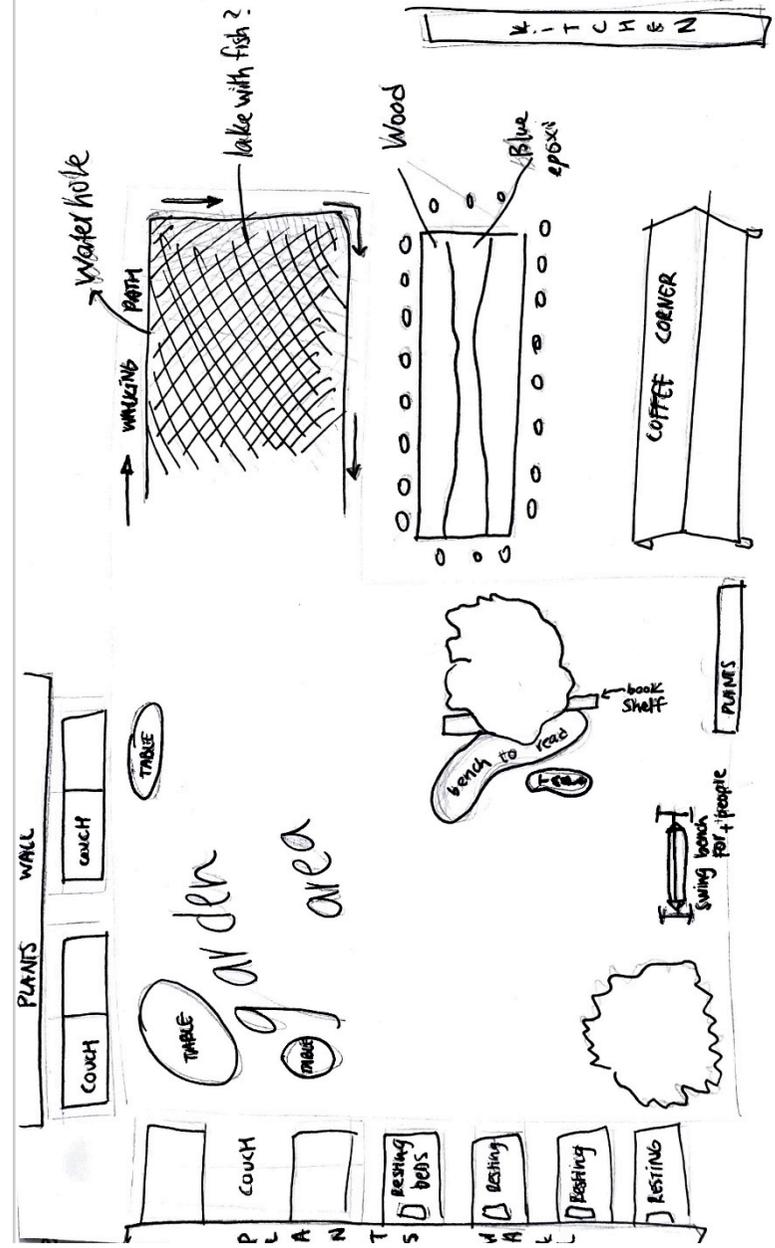
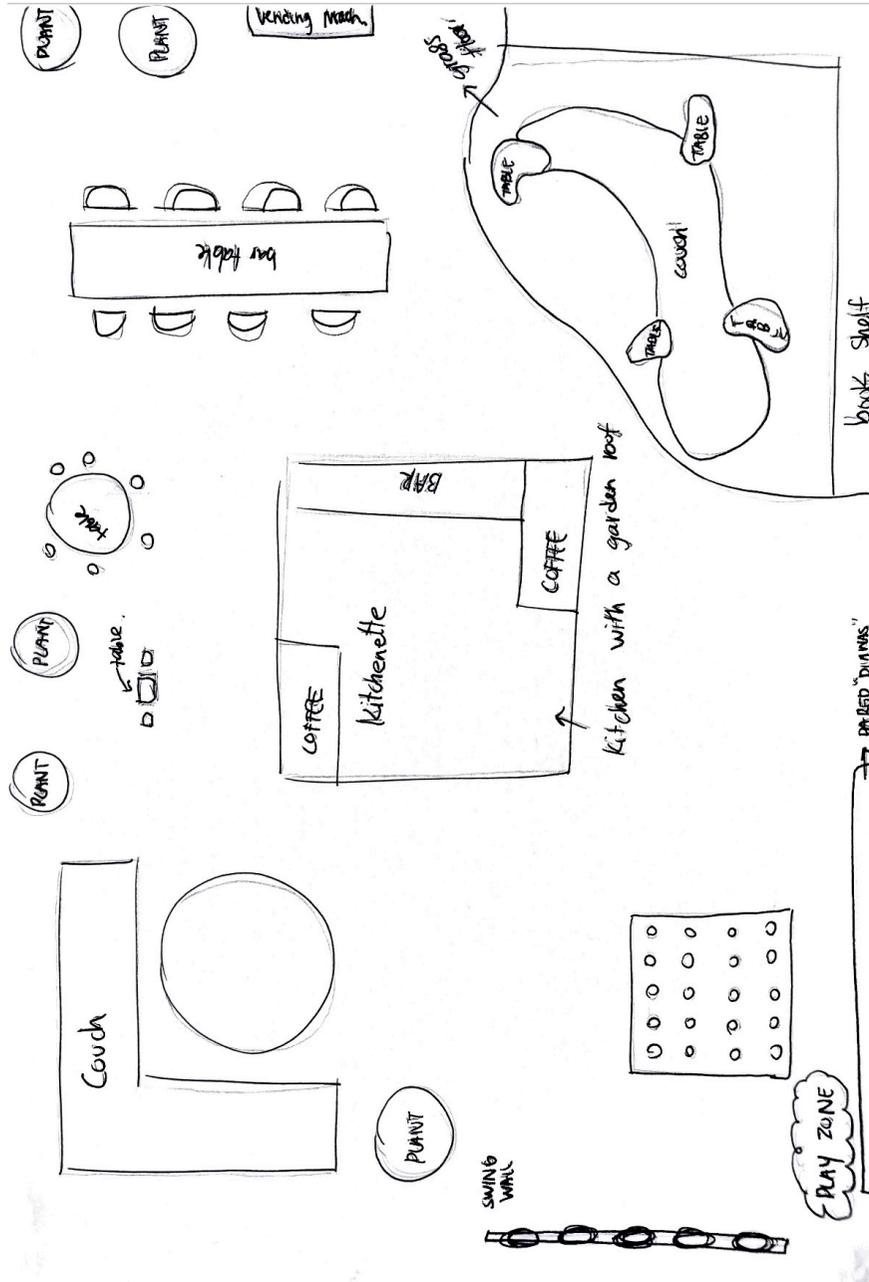


Figure 87. Waterhole sketches 1



# General set-up

116

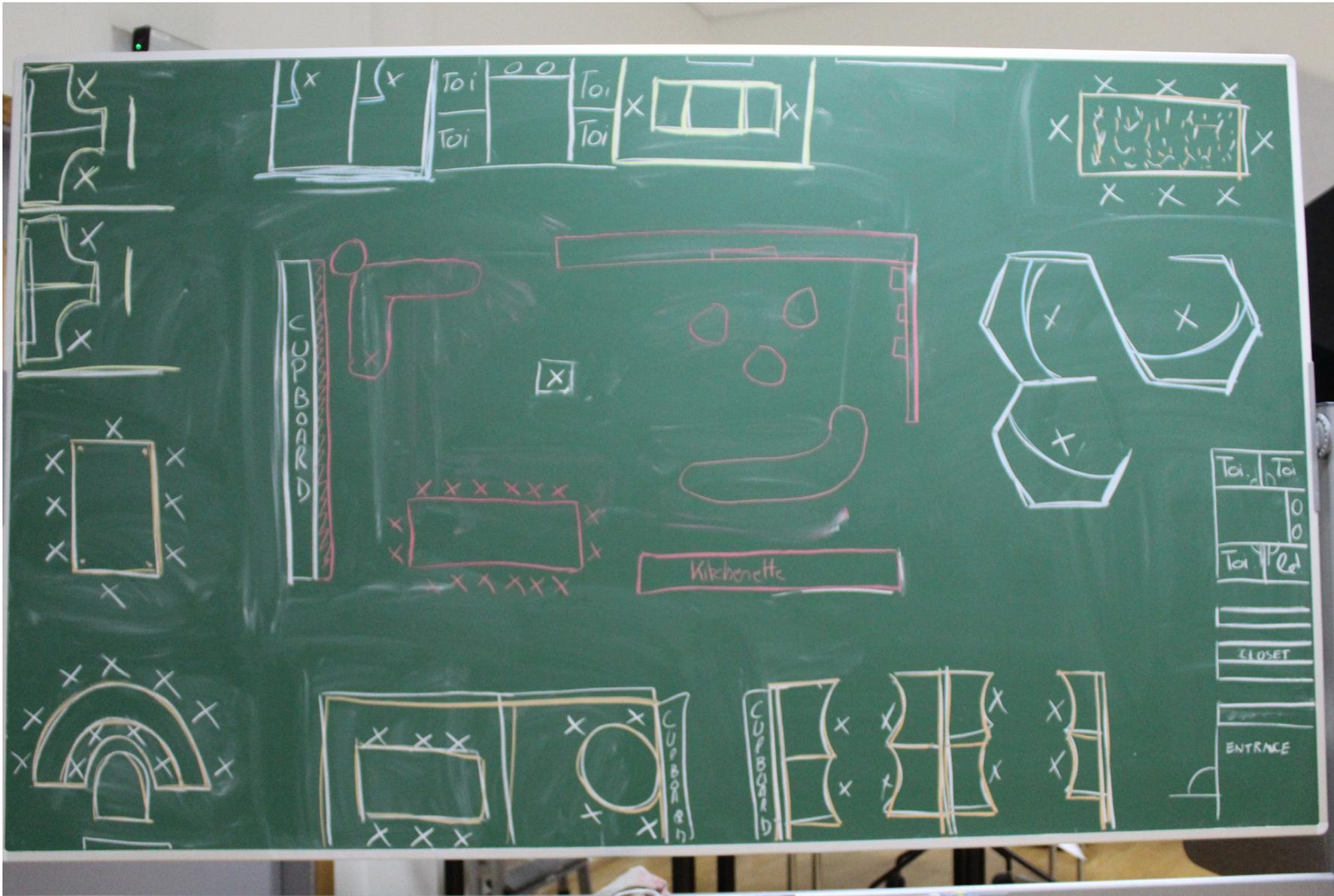


Figure 8g. Set-up Zone A

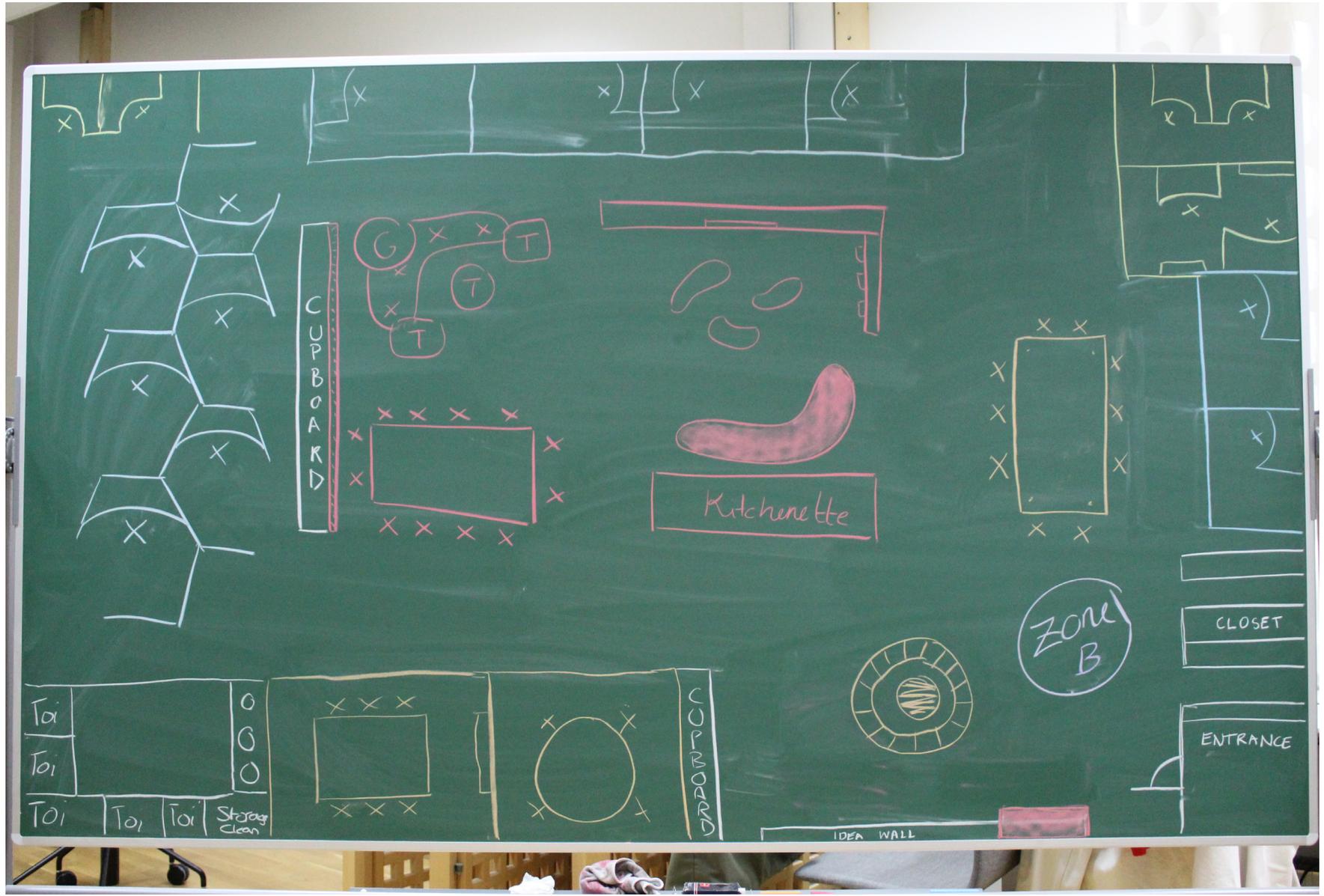


Figure 90. Set-up Zone B

templates



# explanation

In order to have a complete overview on the developed zones, we prepared templates for each of them. Those include on the one hand a short description, what the area is for, and sketches to get a impression how it could look like in the future.

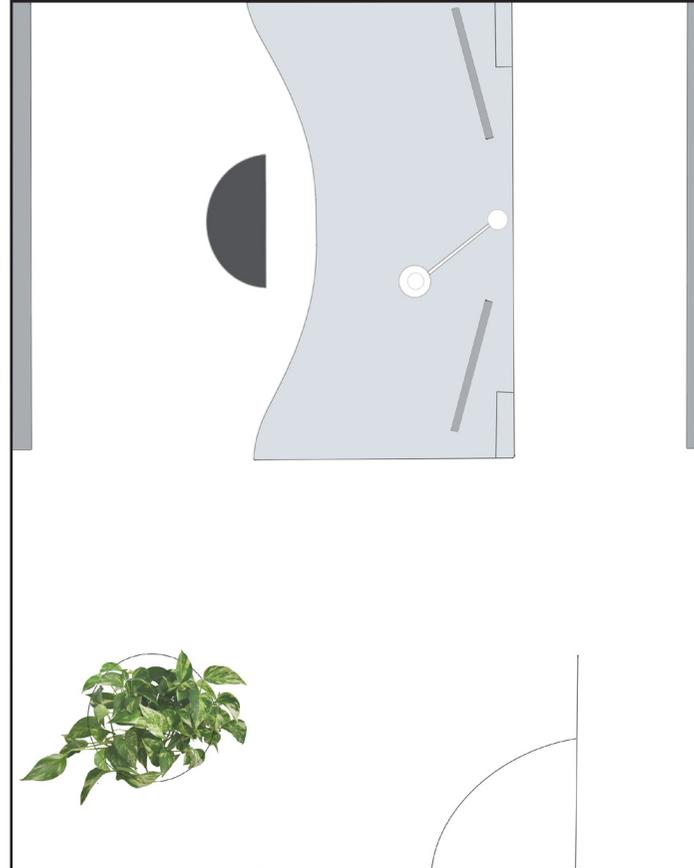
Besides we listed the items that are needed for the spaces, to assure that people can work properly.

As well we suggest some minimum measurements for furniture and and the area itself. These dimensions are derived from our own lab test results and professional data collections. The furniture measurements are mostly based on our test results and the distances between colleagues come from Humanscale. The sizes of the workspace areas are oriented towards the office website SKEPP.com.<sup>5</sup>

<sup>5</sup> Ortmeyer, M. (2019). Wie viele Quadratmeter braucht eine Bürofläche für wie viele Personen?. [online] Skepp.com. Available at: <https://skepp.com/de/blog/buerotipps/wie-viele-quadratmeter-braucht-eine-bueroflaeche-fuer-wie-viele-personen>

# Cocoon

*Intimate space for working concentrated, designed for working alone*



## Measurements

### Desk:

height adjustable  
length min. 160 cm  
width min. 80 cm

### Distance wall:

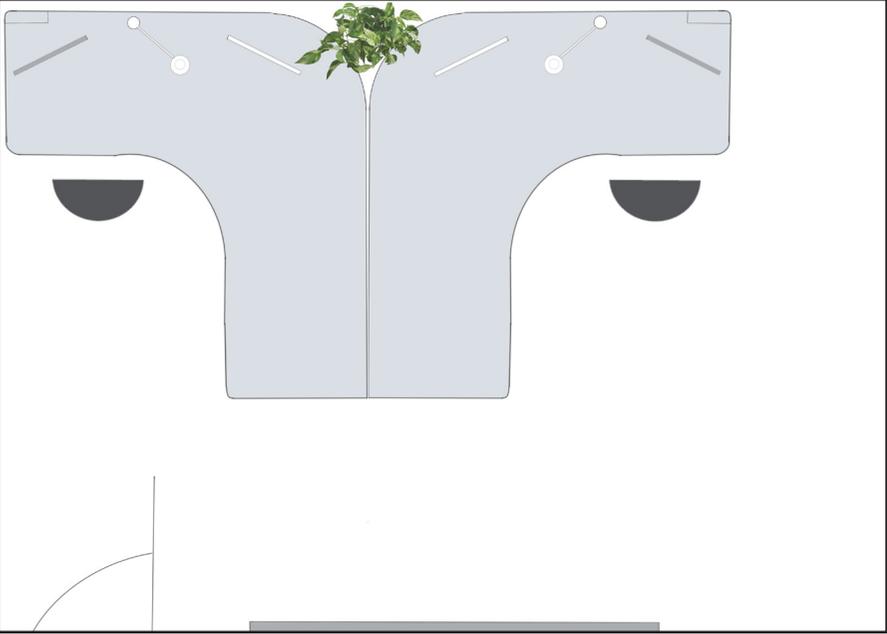
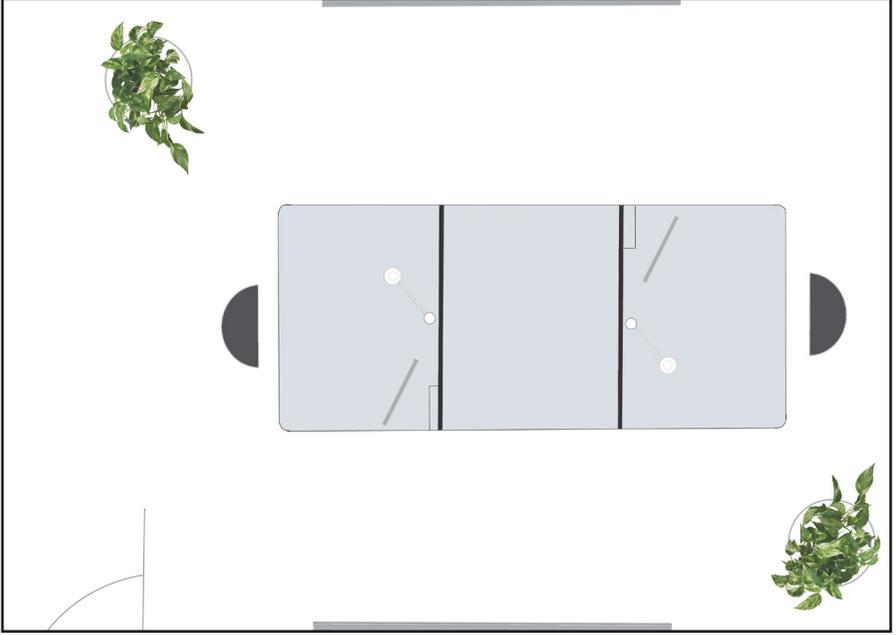
back: min. 100 cm  
side: min. 125 cm (from spine to wall)

### Workspace area:

min. 7 m<sup>2</sup>

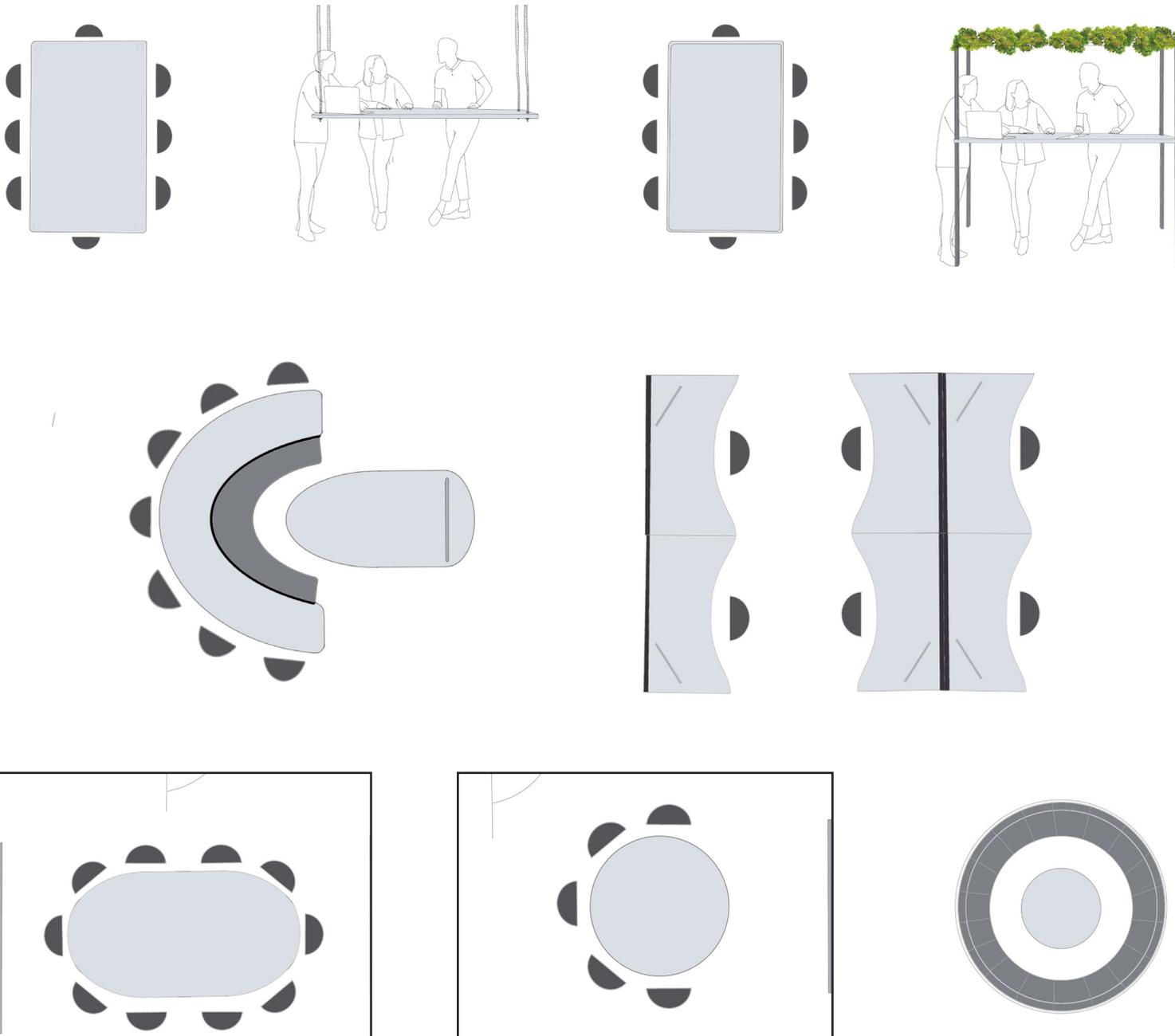
## Items

One person desk  
Ergonomic chair  
Blackboard/whiteboard  
Pinboards  
Isolating walls (noise)  
Screens(s)  
Desk lamp  
Plants

<b>Measurements</b>	<i>Space that induces to work both individually and collaborating, designed for small groups</i>
<p><b>Desk:</b> height adjustable length min. 180 cm width min. 80 cm</p> <p><b>Distance wall:</b> back: min. 100 cm side: min. 125 cm (from spine to wall)</p> <p><b>Distance between people:</b> min. 100 cm</p> <p><b>Workspace area:</b> min. 10 m<sup>2</sup></p>	 A top-down diagram of a U-shaped desk. The desk is light blue with a central vertical gap. A green plant is positioned in the center of the gap. Two ergonomic chairs, represented by dark grey semi-circles, are placed at the ends of the U-shape. The desk has several small white circles and lines indicating adjustable components. The desk is set against a wall, with a curved line indicating the desk's distance from the wall.
<b>Items</b>	
<p>Desk (more than one person) Blackboard / whiteboard Ergonomic chairs Pinboards Screen(s) (individual work) Big screen (collaboration) Isolating walls (noise) Plants</p>	 A top-down diagram of a rectangular desk. The desk is light blue and divided into two sections by a vertical line. Two ergonomic chairs, represented by dark grey semi-circles, are placed at the ends of the desk. Two green plants are positioned at the corners of the desk. The desk has several small white circles and lines indicating adjustable components. The desk is set against a wall, with a curved line indicating the desk's distance from the wall.

# Mutualism

Space used for fast meetings, designed for both small and big groups



## Measurements

**Desk:**  
 height sitting min. 75 cm  
 height standing min. 105 cm  
 length min. 180 cm  
 width min. 80 cm

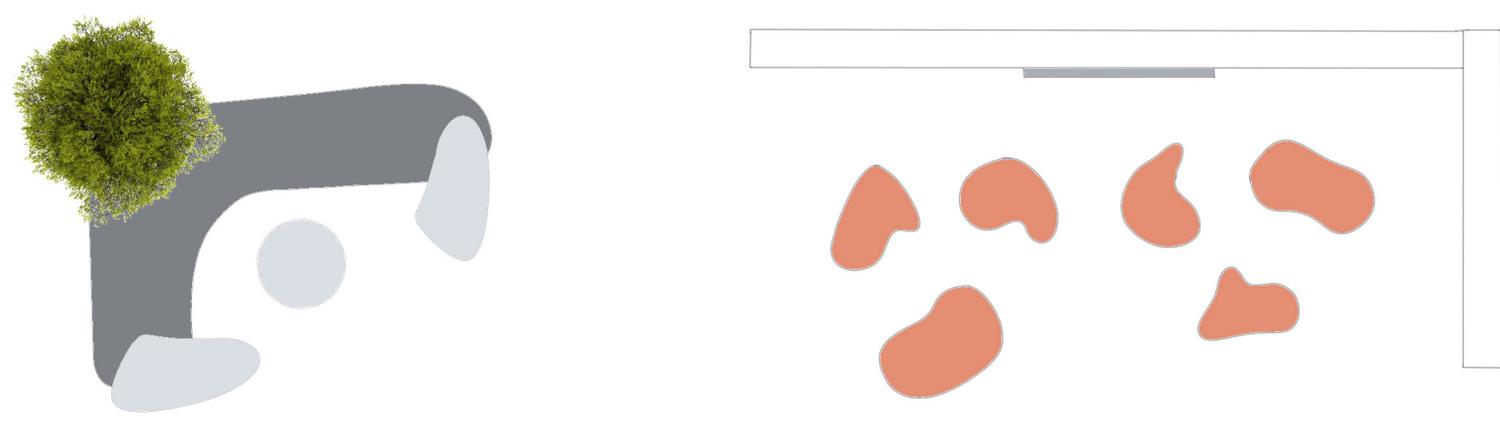
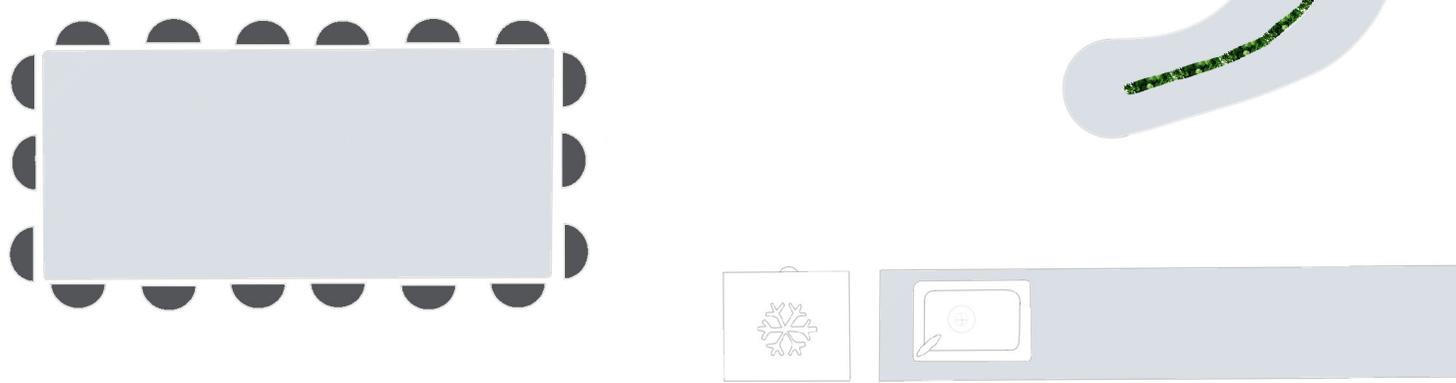
**Distance other furniture:**  
 back: min. 125 cm  
 side: min. 150 cm (from spine to a piece of furniture)

**Distance between people:**  
 min. 75 cm

**Workspace area:**  
 min. 25 m<sup>2</sup> (for 6 people)

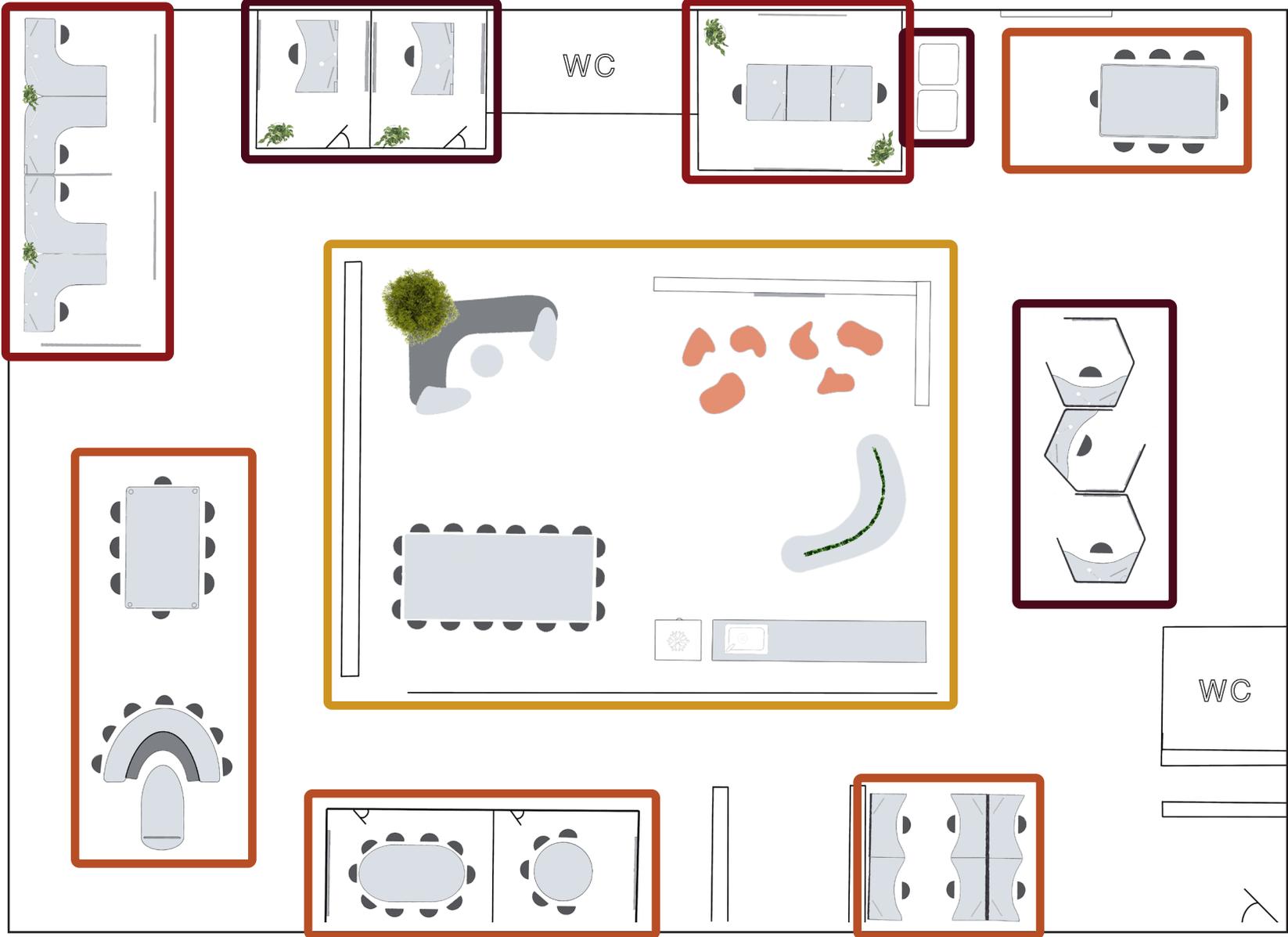
## Items

Table/desk  
 Shelf  
 Cupboards  
 Couch  
 Chair  
 Ice-breaking objects  
 Plants  
 White/blackboard  
 Screen(s)

<b>Measurements</b>	<i>Chilling space, designed as common area to help to socialize</i>
Without specifications	
<b>Items</b>	
Tables Couch Kitchenette Bookshelf Cupboards A lot of plants Sitting wall (wall made of stools for special meetings) Bean bags Screen Plants wall	

# Set-up Zone A

Set-up for a department as the communication department, in which communication is the basis of work



-  Cocoon
-  Symbiosis
-  Mutualism
-  Waterhole

**Items**

- Cupboards
- Walls
- Wardrobe hall
- Plants
- Ideas wall
- Toilets

# Set-up Zone B

Set-up for a professors floor, in which they need more individual spaces but also areas for meeting



Cocoon



Symbiosis



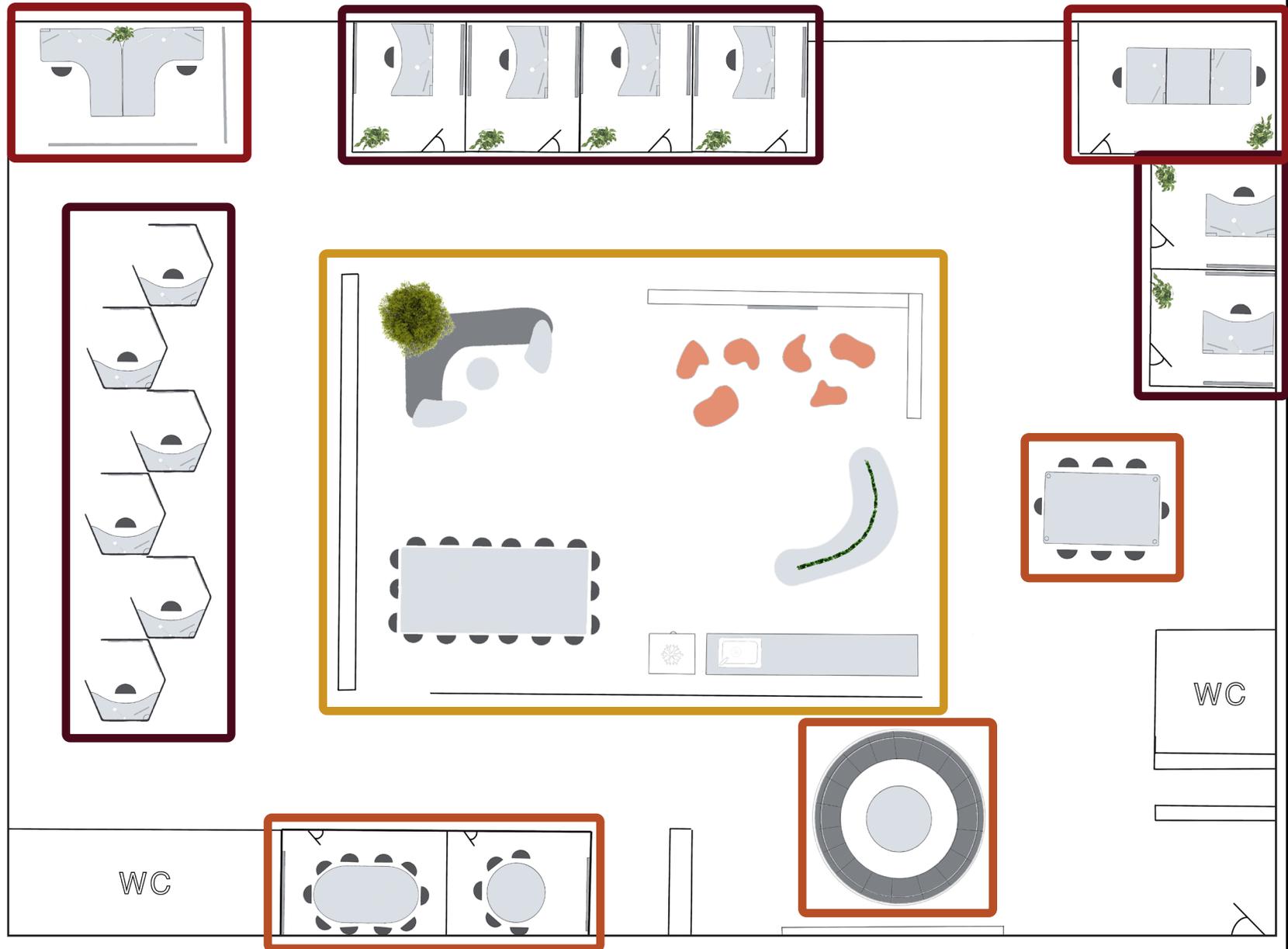
Mutualism



Waterhole

## Items

Cupboards  
Walls  
Wardrobe hall  
Plants  
Ideas wall  
Toilets



# 3D model

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In the end, we decided to build our floor plan as a miniature because it is interesting to show a real presentation of our mindset instead of modeling it in SolidWorks (3D modeling programme). We also determined to do it this way because we are not that used to it and we wanted to face this challenge.

The advantage is that the maquette is not fixed and we can show different arrangements of the furniture. This again shows the principles of ABW.

There are also a few differences between the template floor plan model and the 3D model, since we saw in real life that we could fit even more workspaces.



Figure 91. Cocoons

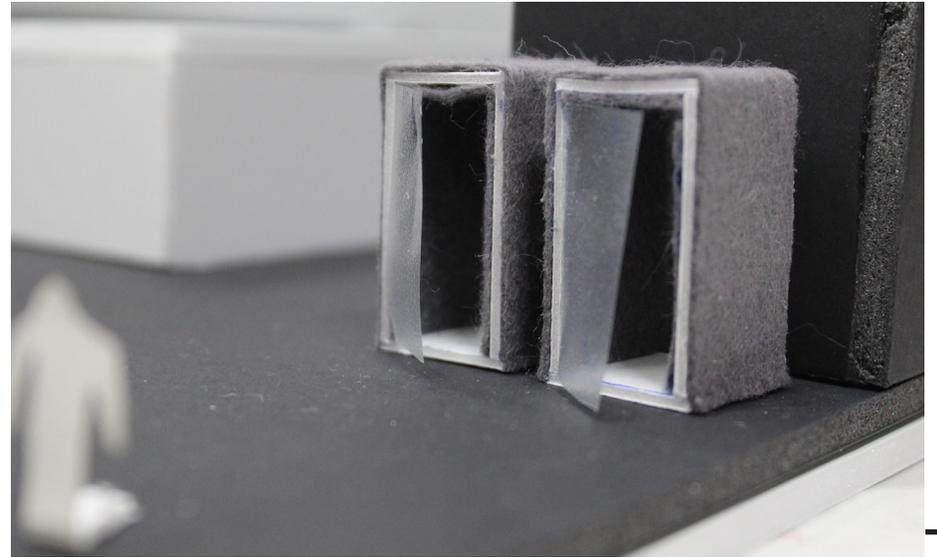


Figure 93. Telephone cabins

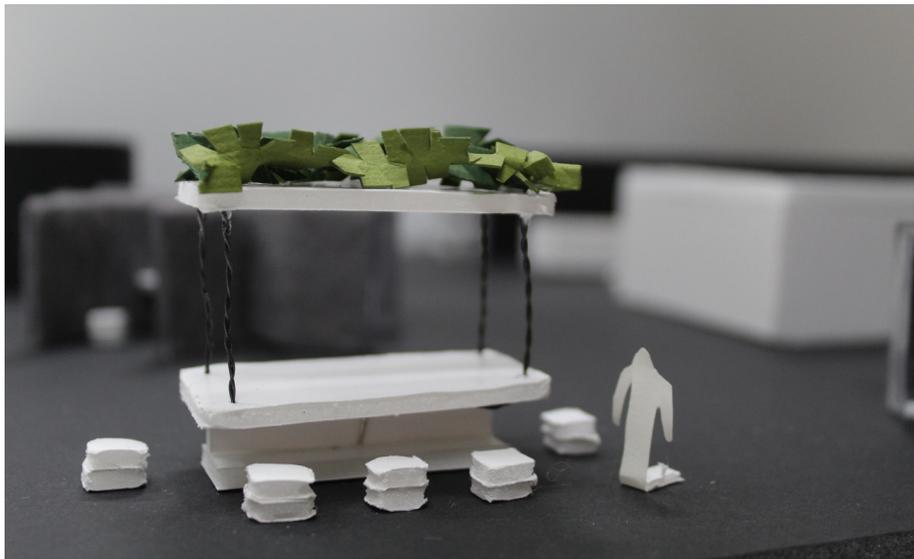


Figure 92. Meeting table



Figure 94. Meeting table

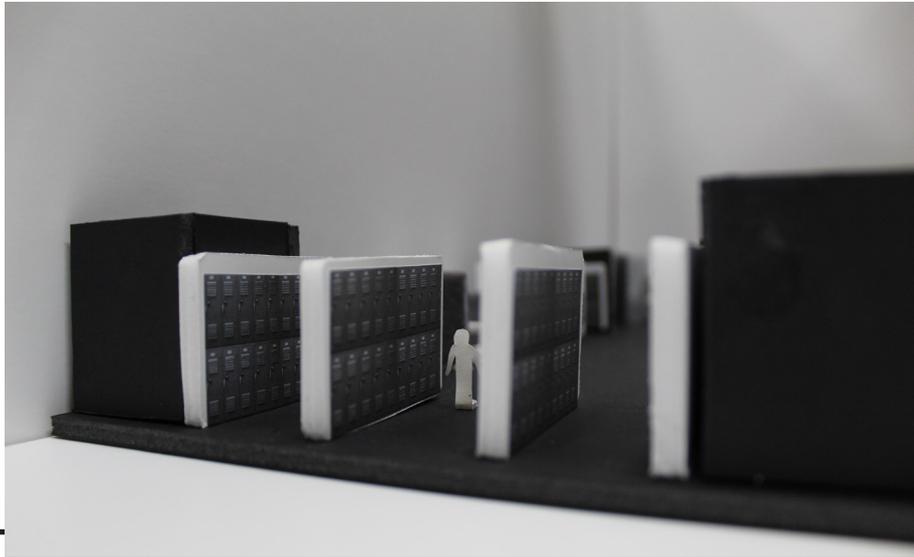


Figure 95. Wardrobes



Figure 97. Cocoons



Figure 96. Mutualism environment



Figure 98. Waterhole

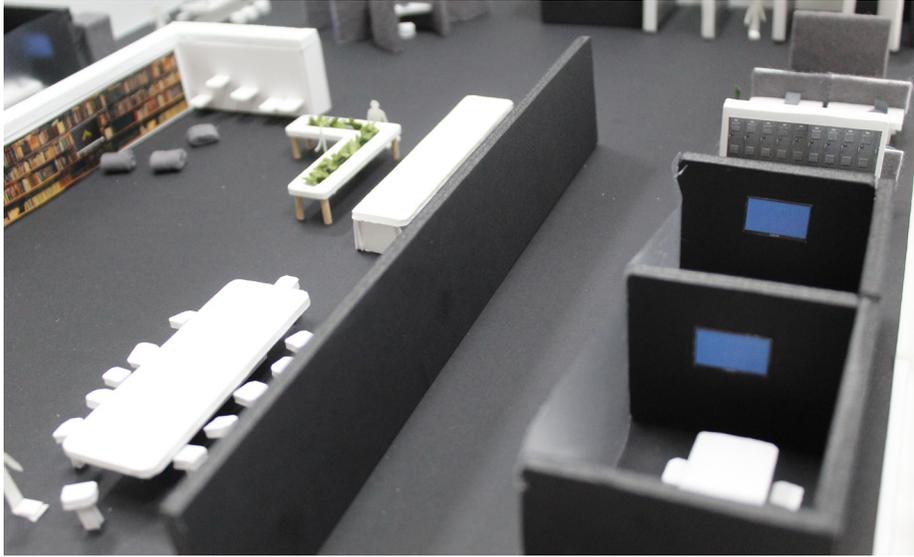


Figure 99. Meeting rooms and waterhole



Figure 101. Symbiosis room



Figure 100. Waterhole

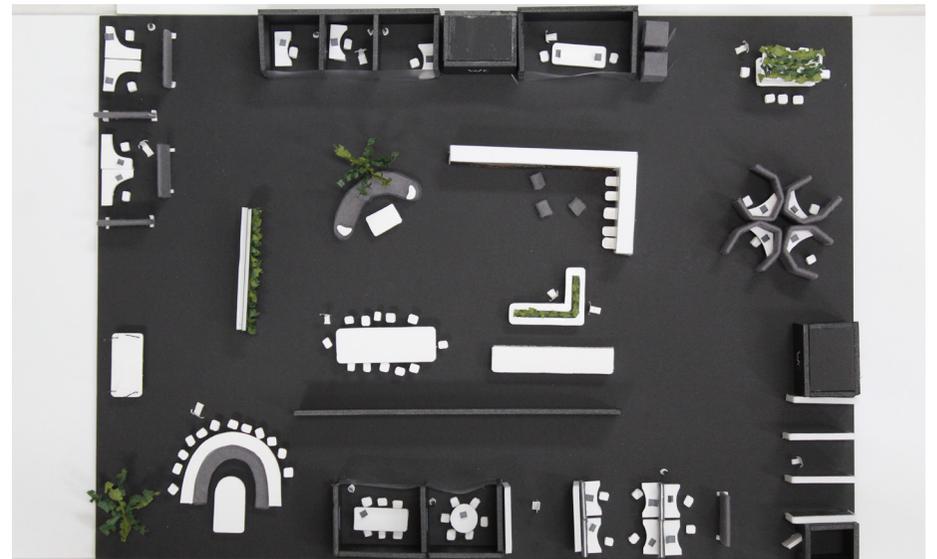
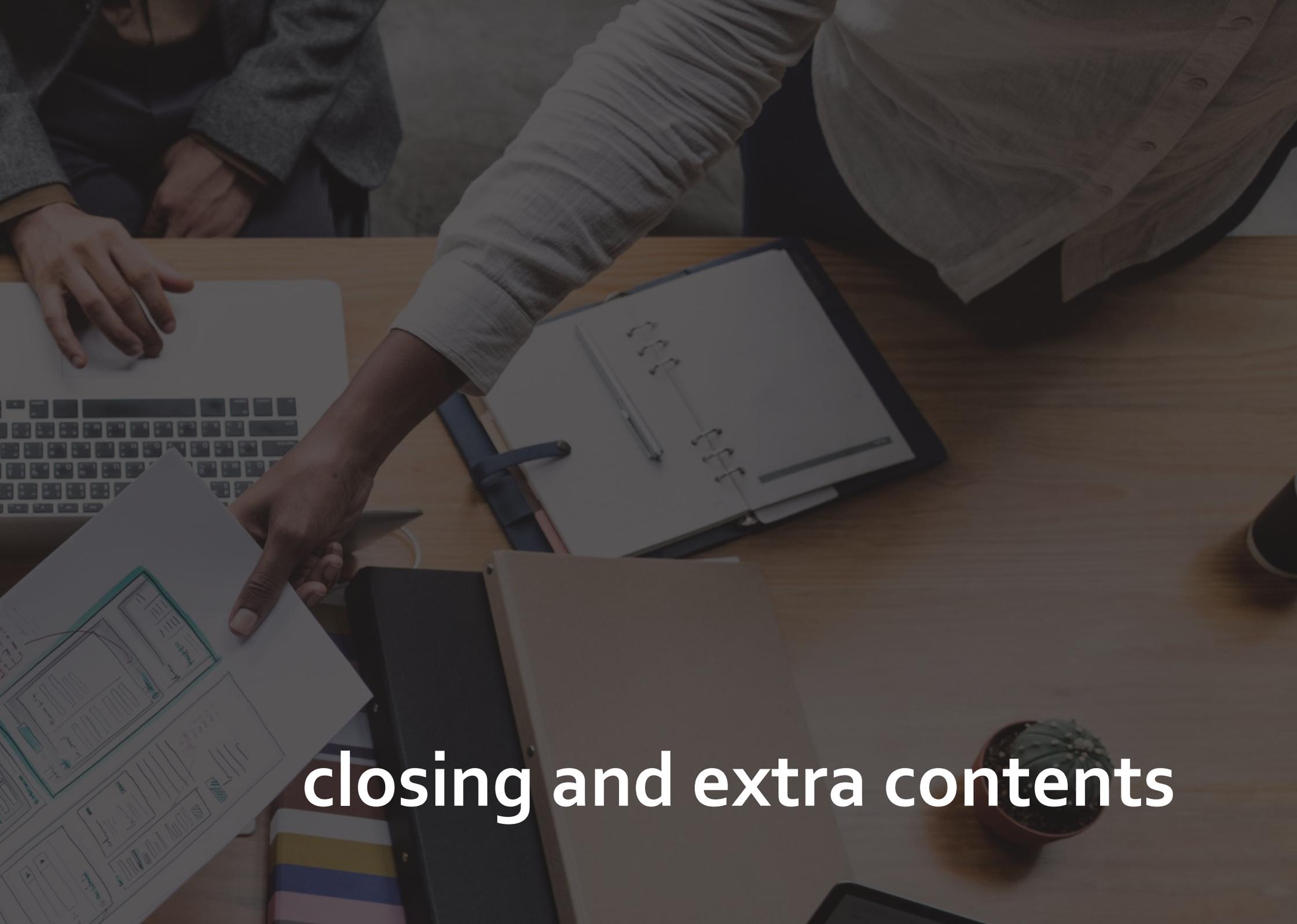


Figure 102. Floor plan



A dark, semi-transparent background image of a meeting table. A person's hand is pointing at a document with a diagram. There is a laptop, a notebook, and a small potted plant on the table.

**closing and extra contents**



# discussion

During the whole report we have been repeating our problem: the excessive use of space for OsloMet offices that ends up as a waste of money. We needed to redesign OsloMet's workspaces in order to make them more efficient, using the space we have in a better way and more productive way.

For that, we have provided a solution that includes four zones, depending on the employees' needs at that moment. It allows them to work focussed, with other partners or on their own and change where they sit, for avoiding the routine. The four zones together can be the ideal work environment.

Our solution gives employees the right of choosing their own workspaces, improving then their well-being. It is also a life-time investment, since the set-ups can be changed, providing then a solution that may change during the years. The space turns into a dynamic area, forcing the employees to change seats, what makes them move around the office and getting refreshed. Moving from one area to another does not necessarily mean change the way of working, but it is highly recommended to use each area for its own purpose.

Again, we need to comment that our solution will become a relief for the budget since we can fit more employees in an smaller place, as shown in the templates, and it will also improve productivity, as proved by many studies from our research.

We consider also that it is necessary to explain that our template is an example of how it can look like, but it will not necessarily be exactly like this. For every building and department, different set-ups will have to be designed in the future.

On the one hand, our project had some obstacles that we found challenging to solve: As we did not had any information of how a real floor of one OsloMet's buildings was arranged, our templates are displayed as a 1000 m<sup>2</sup> rectangle. Of course we know that that is not the reality of OsloMet's facilities, but our solution can also be implemented to a building with different shape or size.

We also assume that, by implementing ABW, there will be people unable to change to this way of working, since some people are used to their regular work style, which they do not want to change. Clearly those people will be respected and not forced to move to a ABW workspace.

The people that are more open for ABW will as well need their time to get used to it, because it is very difficult to make people adopt new habits.

On the other hand, our project provides lots of improvements:

By implementing ABW, we will improve social life in the office, because people that have to move around, have to talk with others.

Our project is flexible, that means that it can offer several different set-ups because the different zones can be arranged completely freely depending on the surface and the needs. Again, highlight that we can change our whole office, because we will only have a few walls.

Giving the employees the opportunity to choose their own workspace gives them the feeling of empowering. It will increase their well-being, since they will feel with the right of choosing for their own.



# spin-off

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During one of our meetings, we were arguing about how our final template would be. We were determined to hand in a serie of templates based on the criteria we obtained during the tests and the research process.

One of our team members, Paola, is from Mexico. In this continent, America, people use apps for almost every single thing in their lives, like for example "Farmago", which delivers pharmacy products right to your door or "Climate control App" which enables you to choose the rights climate on each different room in your house. While Maj-Lis, Lauren and Roser were thinking on displaying some renders and maps that would define how this workspaces could look like, Paola was thinking on designing an app where the workspaces would be shown. Apparently, this was an unconventional idea, since we are not IT students. But later, we started thinking that, maybe we could not hand in an app, but a concept on how this app would work and look like.

The OsloMet's Workspaces App will be a tool where the employees needs would be taken in consideration to choose a suitable workspace. The app can be an up-sale for outlook, so employees' work accounts would be connected to create this database.

The app will open displaying an axis with four different points, showing different levels of concentration. As soon as you pass on top of one of the points, a picture will appear over it displaying how a possible workspace could look like, and the denomination and a short description will appear under it. We would like to use this tool for choosing your workspace based on your working activity for the day.

For instance, two people are going to work in researching and giving feedback. That would be considered a level 2 of concentration, a Symbiosis. Then a list of different workspaces will appear, being in the first position the most suitable one for their characteristics (personal data and measurements are already integrated in the app) and also taking into account which items they need for working. After selecting the set up, the option "choose a partner" appears, and they can look for their partner's name. In case that the partner is an external person, the app will offer the option "External" and then the name and email address should be entered for inviting the person to the meeting. The user will then receive an email confirming that the workspace X has been booked for the selected date.

Of course, for avoiding that people occupy a workspace for long periods of time, there will be time limitations for booking.

For further developing the app, sensors for environmental conditions can be implemented. Those items would for instance acclimatise the ideal temperature for the user automatically. Besides the lights could be turned on and off regarding to the workspace' schedule.

Also this app can collect information on how much different working areas are used. For a future redesign of OsloMet's workspaces, it would be able to give proper information on which spaces are used the most.

Link to the video of how the app would work: <https://youtu.be/DvwwTiDnyDY>

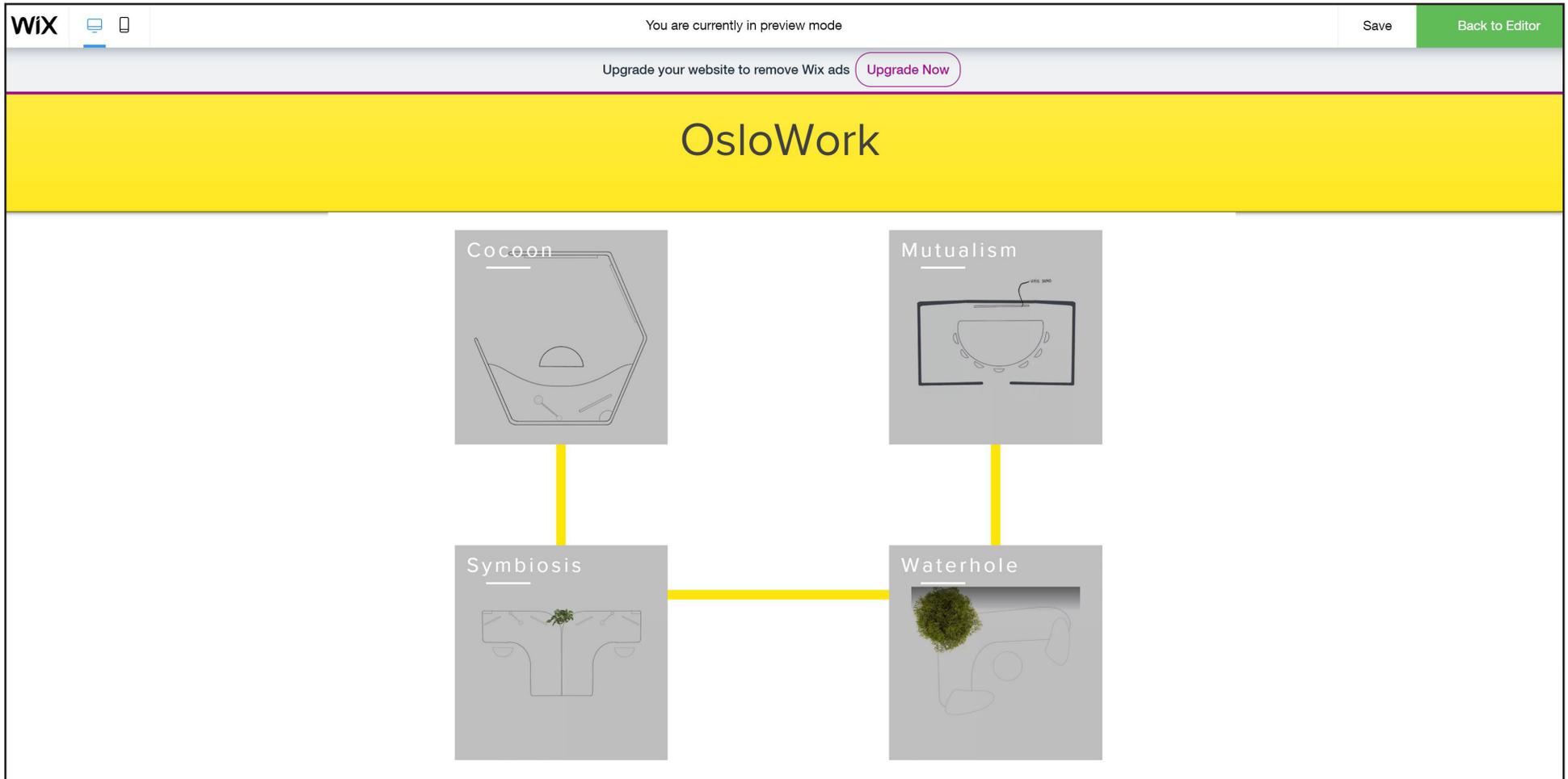


Figure 103. Pick the zone

Display and explanation of four different areas. Select the desired zone.

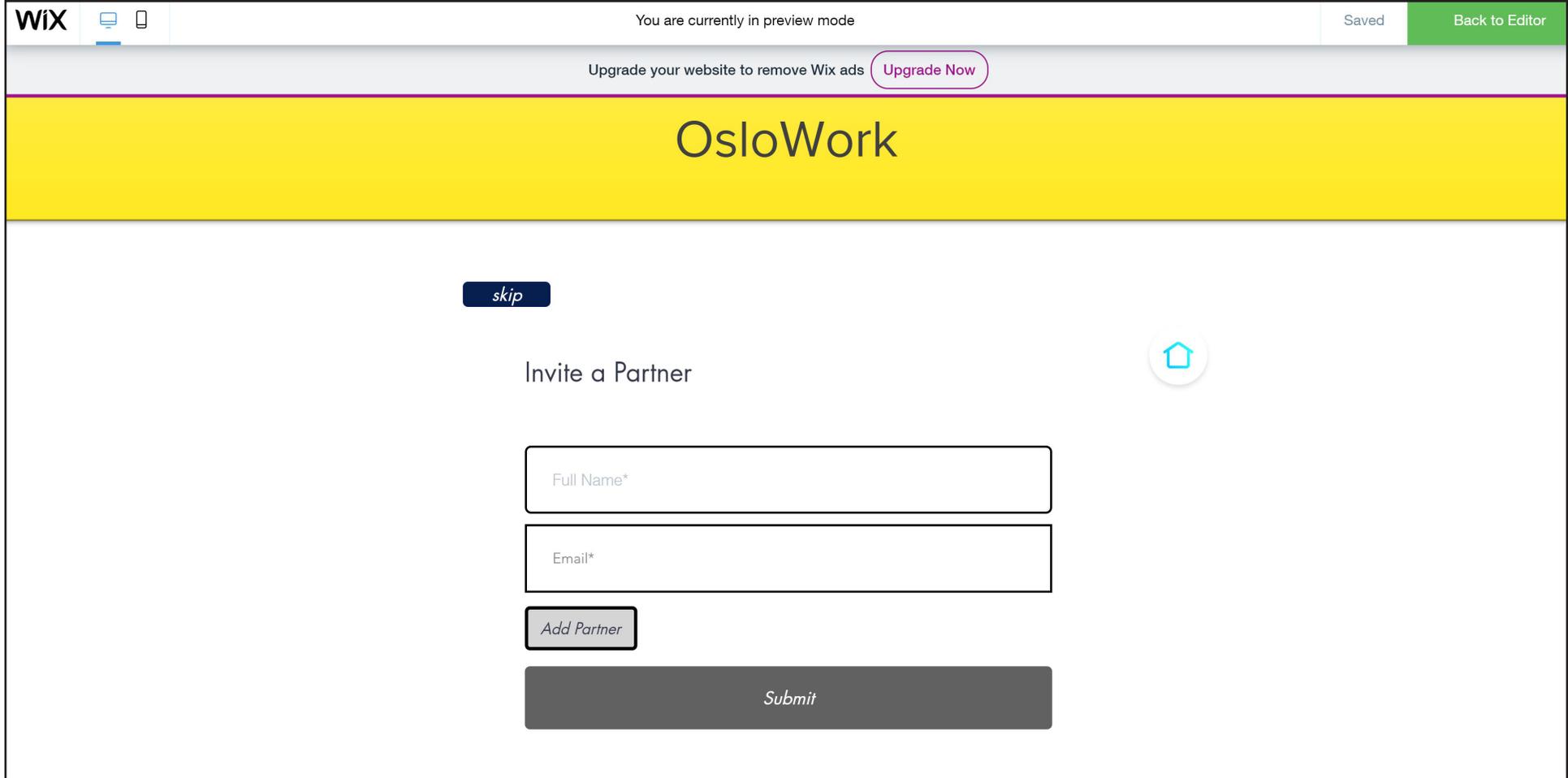


Figure 104. Invite a Partner

Invite a partner to collaborate with you. This option will be synchronized to outlook mail in order to notify them and schedule the meeting.

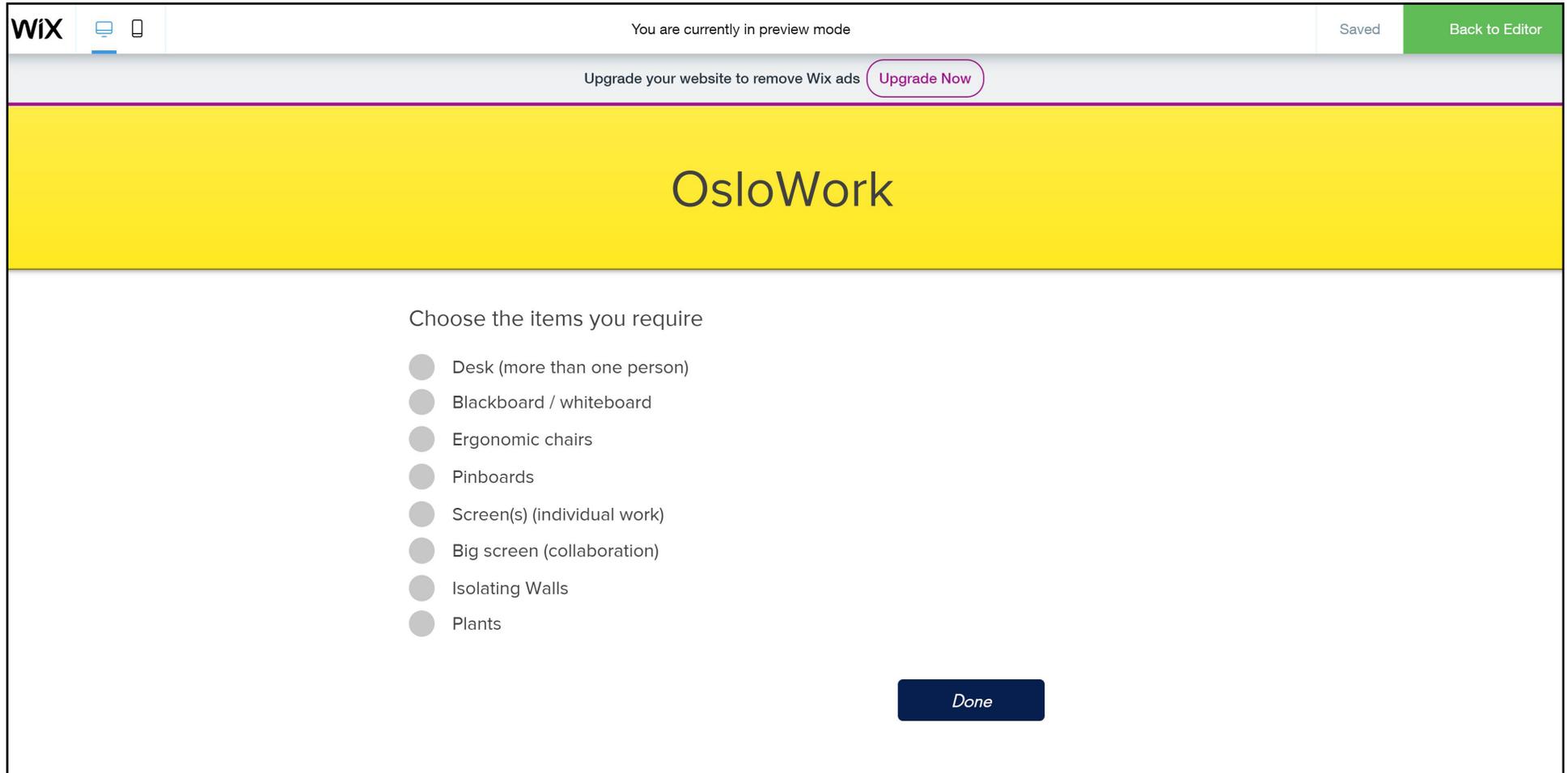


Figure 105. Item list

Select the essential items you need for working to be able to provide a suitable workspace for you.

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# OsloWork

Symbiosis 

→ User  
→ Partner 1

Possible workspaces:

	P46 - P117 (Availability: 9:00 - 12:00 / 14:00 - 16:00)		P32 - N040.112 (Availability: 11:00 - 15:30)
	P25 - 2nd floor		

Figure 106. Possible workspaces

The available workspace options that meet your needs will show up. Select the workspace that best works for you and book it. A location is provided for specifications.

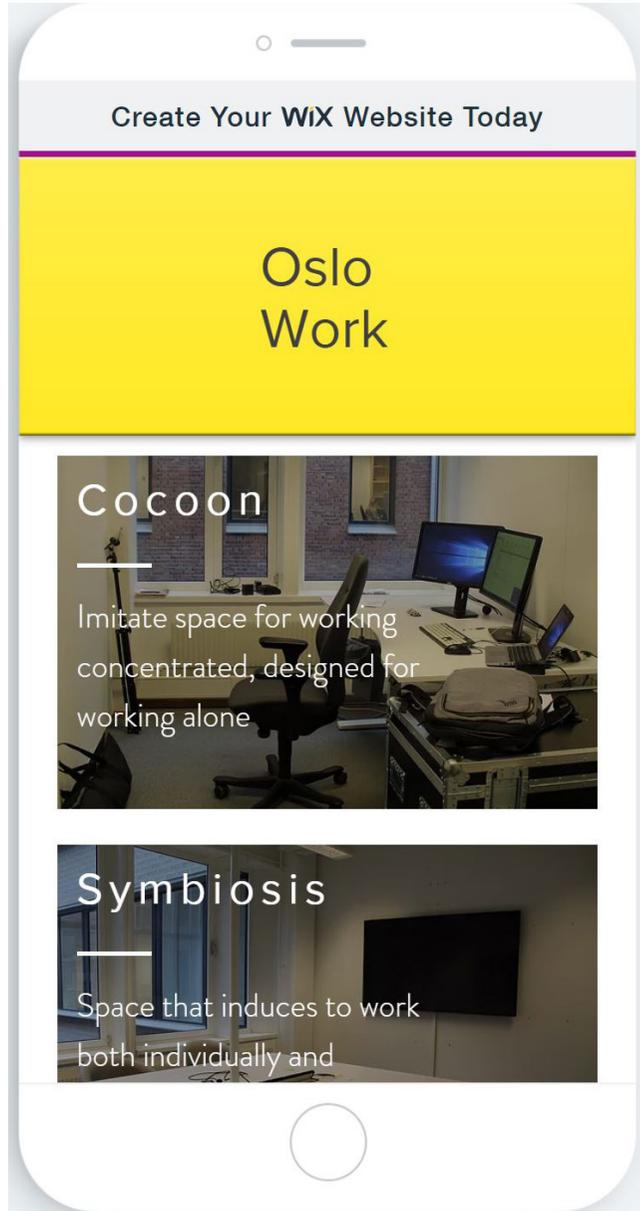


Figure 107. Pick the zone

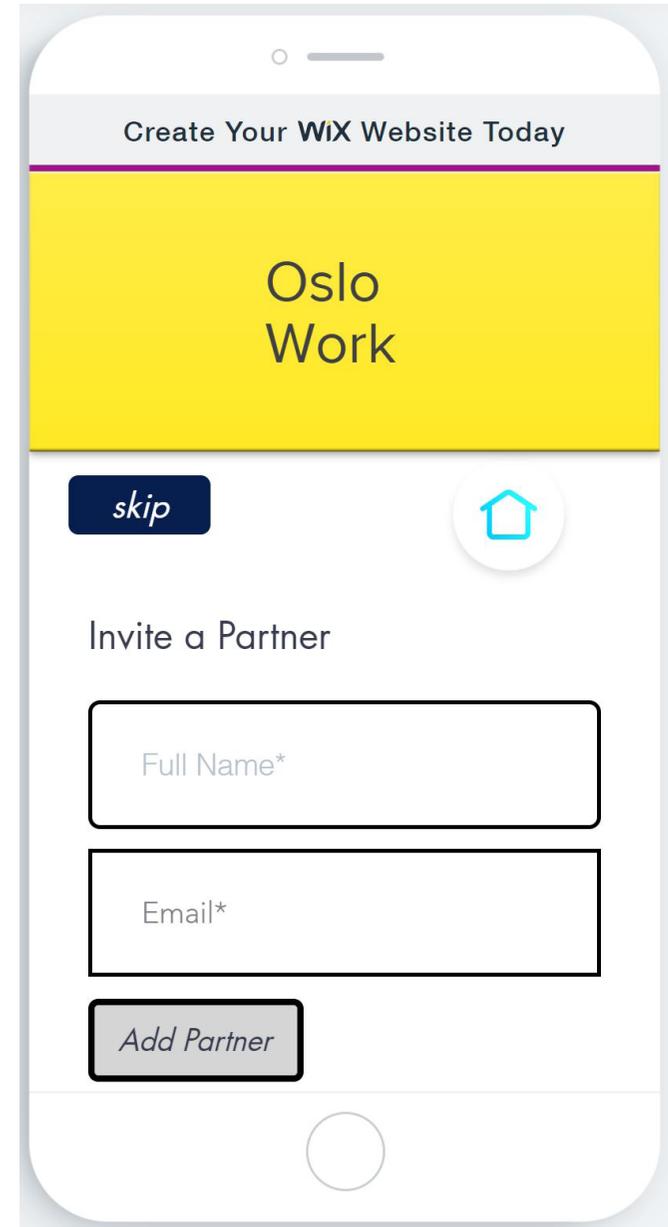


Figure 108. Invite a Partner

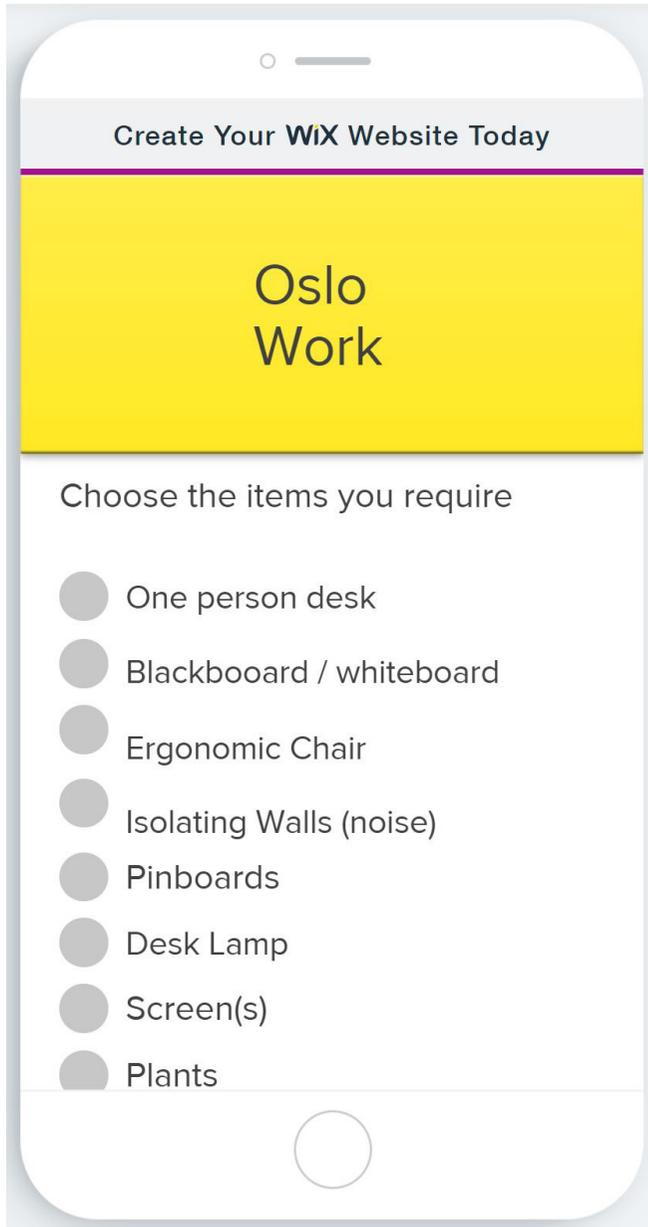


Figure 109. Item list

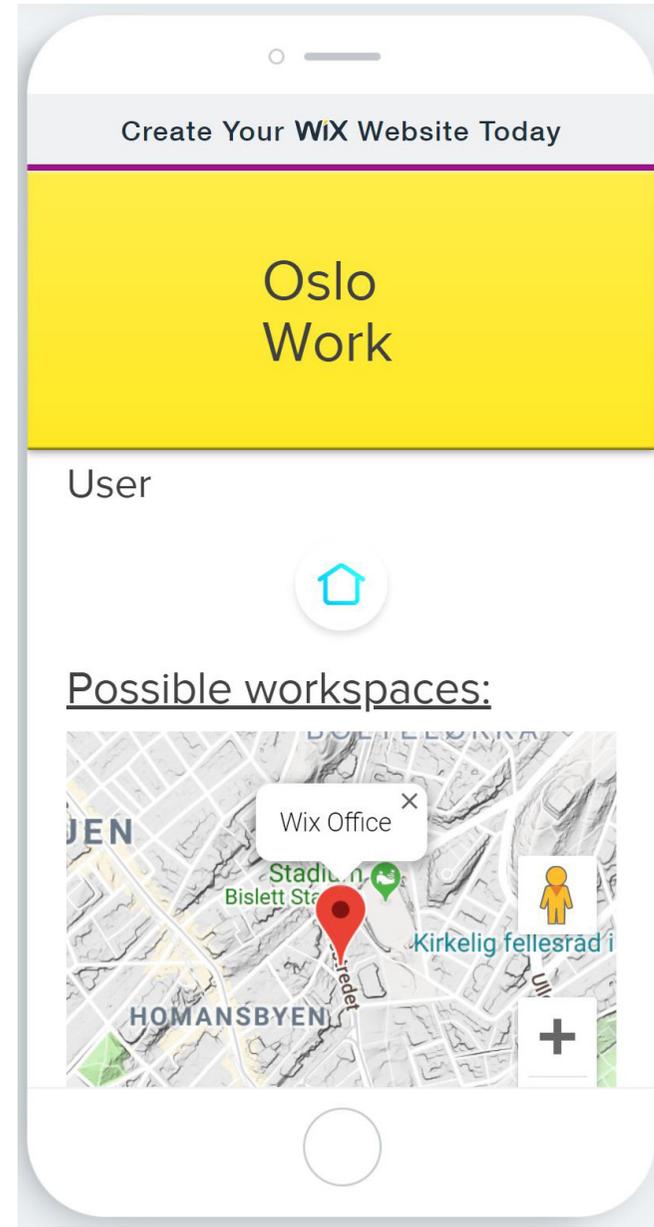


Figure 110. Possible workspaces



# conclusion

Through researching information through different fields, we got to a solution that is the most suitable for OsloMet University. In the end, this project is not only ideal for OsloMet, but it can also be assigned to other companies and universities.

We believe that our project can be the start of a working evolution since many companies are looking for a change but do not know how to organise this process. Our criteria provide the necessary data for companies to assure the change to improve their working environments. Despite our concept will offer the possibility to create a better management of the available spaces by means of the app.

With our results we clearly discuss the importance for the satisfaction of the employees rather than only focusing on the furniture price. This will give a better reference for the Facility Management department to have deeper insights in the university needs and be able take decisions when it comes to furniture and spaces.

We consider that our project is the basis for future investigations and development, since it is a wide field on continuous growth. ABW is still a developed term that is changing the world's way of working. We also developed the idea of the App to help with the organization of the different workspaces and can be used for future EPS projects to be implemented and provide the whole experience.

reflection



The European Project Semester has been a great experience for all of us. From the beginning, we were motivated to bring this assignment to a successful conclusion. Of course, the whole project was very unfamiliar to us, but this experience exceeded all our expectations.

First of all, we learned things from each other and the project that will contribute to our development in our own field and further career. We have gained experience both professionally and personally. To give an example, in this multicultural teamwork we learned to deal with different nationalities. From the start, we soon noticed that there were some cultural differences. Typical clichés sometimes became reality, but at the same time we were able to handle this well. We learned to respect each other and tried to find compromises so that everyone felt comfortable in the group and supported the final outcome.

Furthermore, it was very inspiring to work with teammates from different study fields. This allowed us to teach each other certain things that were totally unknown to some. For example, Maj-Lis, as an engineer, showed us how we could tackle certain issues in a structured way and as a result we were always able to work very clearly and purposefully. Roser, Paola and Lauren gave Maj-Lis the opportunity to explore the creative world.

At the beginning of the semester we did the Belbin test to figure out our own team roles. We ended up with an extensive result and we were very glad about it, because it seemed that we have different strengths that can support each other. However, in retrospect we can state that our roles did not show this way in our project work. For instance no one of us reached a high score at being a monitor, but in the real work we were all able to come to an objective decision without being led by emotions.

It was not always easy to follow each other's visions about the project. During discussions some conflicts were experienced due to the belonging of steering the decision into the direction that is individually seen as important (based on the type of study and knowledge). For instance, we faced a critical moment nearly at the end of our project when Paola and Lauren and Maj-Lis and Roser had different ideas about the zones due to a misunderstanding. This evolved into a tremendous argument where we tried to explain and defend our points of view. It was for us important to convince the others instead of just accepting without reasoning. At the end, Roser changed her mind and Maj-Lis accepted the group decision, as there was a majority supporting that side.

Though this is not all negative at all, on the contrary. We learned how to handle and solve group problems avoiding tensions between team members in the future. We also learned a lot from each other's background knowledge and the way to share this with the group members is by having these discussions. In the end, this has led to the equal implementation of knowledge by each of the group members in the project.

Secondly, on a professional level, we also gained a lot of valuable experiences. It was completely new for us to meet companies and discuss with them about 'real life' projects. During our visits, we always received positive feedback and that made us feel more certain about the things we were doing. Moreover, we also learned more about teamwork, specifically that the leader in the group should not always be one specific person. We were all very motivated and, depending on the situation, each one of us took the lead. Beside, we feel more comfortable and confident to speak in English in a group.

We started working directly in the first week of the project semester. We usually divided the tasks, in order to work in the most efficient way.

The only time we did not follow that way of working was the preparation for the mid-term presentation, where we developed our presented topics all together. However, it showed that this takes too much time and thus we agreed to prepare our final presentation in a more proper manner.

On the other side, we set the maquette as a final challenge. For us this was an incredible success, because instead of having the situation we faced in the mid-term presentation, this time everyone had its particular contribution to the whole build-up process. We also had a really nice time spending 3 days together, listening and singing music and enjoying the end of our project. This happened mainly because now we understand each others' way of working better and supported the decisions of having tasks divided.

Lastly, we are happy that we shared this fantastic experience together as a group of students, but certainly also as good friends.



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**attachement**

# mindmap

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## Different zones

In a workplace one does not only "work". It is a place where most of the people spend a huge time of the day so "meeting" and "resting" are also usual things at work. For all these kinds of activities employees and students (in case of university workspaces) need different kinds of places.

The first thing one would think about in hearing the word "workplaces" is a private or shared office. People can work in a silent area without being disturbed too much, but libraries for example are quiet workspaces too.

Contrasting to this are noisier workspaces are for example PC rooms, classrooms and laboratories. Especially workshops - they tend to be a louder environment.

A good example of a mix of quiet, closed workspaces and the noisier rooms would be conference rooms. Of course, it is not as quiet as in an office but during meetings the employees talk less than they would, for example; in the hallways.

One popular workplace often forgotten is home. Particularly in modern times home offices are used more frequently than ever before, and are subject to increasing levels

of compliance. It can be much easier in practically to work at home than in the company or the university because there is no time wasted in travelling. Instead they can start working immediately.

Meeting people is the next huge part of a working day. Nowadays, it is not possible to work profitably without networking or, at least, having some contact to others. This can be directly linked to productivity especially when working in open areas instead of closed offices. There is also the possibility to strengthen the relations between colleagues by having a short chat in the hall or in the bathroom.

A good possibility for meeting somebody is also at lunch time. This is because eating together in the cafeteria (or just next to a vending machine) automatically creates a relaxed atmosphere.

Finally, "resting" does not sound much like a part of working, but it is. People cannot work the whole day, so they need some time and space to rest. Some companies (especially those that contain shift work or on-call duty) have sleeping rooms. But even without sleeping, people can rest for a few minutes. In open areas such as lobbies with comfortable seats or at the cafeteria. A room of silence to calm down from the consistent noise could be the library.

## **Kinds of offices**

From the research we have arrived to differentiate five kinds of offices:

### ***Private closed:***

A one-person closed office, separated from the other colleagues. In this kind of office, you usually find some basic furniture and decorations to make the workspace more personal and perhaps some plants to make it feel healthier.

### ***Private shared:***

An office with more than one person, but still in a closed room. In this kind of space there is no differentiation between working areas. This means all the employees in this office would share the space and also facilities, furniture etc. Usually people that do share these kinds of spaces work in the same department or have projects in common, therefore the purpose of these workspaces is to make work and communication easier.

### ***Individual opened:***

A one-person open office, typically with some screens to differentiate this individual space. This kind of office is usually used in big places where information needs to be exchanged very quickly. This kind of office grants less privacy because the focus is more on communication. That is why this area makes group projects easier to develop, since each employee has their own space, but it is still within a shared space.

### ***Shared opened:***

An open office with more than one person to facilitate the exchange of information. This office is usually used by partners working in similar tasks or even working together.

### ***Bullpen:***

An open office for more employees without any separations between the desks. This type of office is used in big spaces where information must be shared as fast as possible. This office offers no privacy but it is cheaper to produce, and that is why many companies use them. Some studies suggest that this kind of spaces makes productivity and employees satisfaction decrease.

## **Environment element**

One important topic (shown in the mind map) concerns the environment within workspaces. We chose to divide this subject into four subcategories: ergonomics,

abstract elements, physical elements and needs. After our research it was clear that we had to focus on these four. They are different, but they all depend on each other.

Firstly, we looked at the subject of ergonomics. Ergonomics can be defined as the study that researches with the way people act in their working environment. More specifically, the study tries to find ways to avoid the risks and injuries in the workplace. We looked at the standard and extreme dimensions of the body. How much space is used and what physical obstacles are found during the working day. We looked at the interactions that occur between certain products and the user. This way we can understand which ones work negatively on the performance of the employee. In offices, the standard sizes are always taken into account, but it is clear that this is not the same for everyone. Too little attention is paid to the body movements that are performed during work. These types of problems may lead to increasing risk factors and musculoskeletal injuries. It is important to make improvements to the work process and remove barriers to ensure safe working.

Secondly, we think that abstract elements are also an important part of the environment. We are talking about all the elements that you cannot physically perceive. These elements have a major influence on the performance capacity of an employee during working hours. Every employee is entitled to a pleasant, healthy and safe workplace. For example, the room temperature and humidity in the office play a role. The lighting in the office also has a major influence on the work conducted and the atmosphere in the office. The best thing is to let in as much daylight as possible, but unfortunately this is not always possible. It is difficult to control these properties, but we cannot forget that they can have a big impact. During our research we will take these elements into account.

After the abstract elements, we also have the physical characteristics. This includes all the objects that we can feel physically. The main subject here is furniture. The use of the right office furniture has a major influence on the level of productivity of the staff. Today it is essential that every employee has a workplace that is fully geared to the requirements of the body. Also other conditions such as plants and decoration may influence the behaviour of the employee. Research shows that working environments that are enriched with plants have a positive effect on the satisfaction and concentration of the employee. Plants make the employees feel more comfortable and more at home in their department. They experience an improvement in air quality and they feel that they can concentrate better.

One of our tasks was to investigate which physical objects are needed in an office and which ones they have in their work environment. Often too many objects are placed in

an office, which negatively affects the performance capacity. The employees of each department also have a different working atmosphere and uses different objects.

Finally, we looked at the needs of the employee in their office. There are many needs and these may vary from person to person. Trends, age and culture have a major influence on personal needs. We think it is very important to discover these and to create a space in which these needs are taken into account.

## Trends

In order to analyse different aspects of our new workspaces we consider the trends on workspaces and interior design have been changing through years and here we are for commenting some of them.

On the one hand, when we talk about workspaces trends we are speaking about social or environmental movements that are growing up and taken into account more and more this days.

Workspaces nowadays need to be environmentally-friendly. It's necessary a clean, pure atmosphere and also a relax environment, using for this natural materials. Humans connect with nature, so the more surrounded by natural things, the best they will feel and work. Also recycling is a main point: Reused furniture, furniture made of recycling materials... Also taking care of classifying the debris inside the office and making employees aware of this issue, at work and at home.

Continuing with the work environment, for personal well-being, natural light is necessary, not only for a good psychological health, but also for the physical. And with this we have commented the main point, well-being, to feel accepted, cared and also happy inside your working place. One of the main trends worrying about well-being is remote workforce: The dislocation of the workspace is now a characteristic that is being required in many jobs, since the labor compatibility is becoming one of the employees priorities.;, as well as custom flexible rooms.

And last, but not least, no discrimination by gender, sexual preference or race.

On the other hand, we have the interior design trends, which are what styles are now getting used, and we have taken into consideration some of them, as woodland shades (continuing with natural materials) and the official colors of OsloMet, despite this is only a first step idea.

Another trend nowadays is activity based working. ABW is a way of working in which employees have to move in between different workspaces depending on which task they are realizing at that moment.

## Different people

Nowadays, multiculturalism is a very important value all over the world so we decided to take into account individual cultures. The first thing we took in consideration was the people's culture. This can have an impact their type of knowledge, personality and behaviour. Depending on their culture, they develop different knowledges and personalities which relates to their identity, tactics, type of energy and in their mentality. On the other hand, their behaviour also affects their method of working, the way they relate to each other, their level of responsibility, and the power of distance between each other.

Following this, we wanted to focus also on different generations like the digital adopters. This focuses on people that are constantly adapting to modern changes such as; advances in technology and those who are digitally native (those who used these types of technology since birth)

Finally, one of the most important parts of our project was to focus on the variety in people's physical differences like their weight, height, strength and even in their disabilities. It is important to take each of these differences into consideration for us to be able to have a variety of options and adaptable workspace options suitable for the differing needs of individuals.

## Different work/activities

We divided the different work activities into two sections; group and individual. For groups, we decided to include all activities that involved socialising or group involvement, for example; discussion, lectures, meetings, etc. Individual activities those in which you need your own space and you require concentration and privacy. Some examples of individual activities are researching, reading, phone calls, focussing, e-mailing, resting and thinking.

After dividing these two working activities, we also made a group in common that could involve both individual and group working like for example: studying, eating, computer work, assignments, relax, exercise. All these activities could be done in a group or individually within the same workspace.

Therefore, variances in workspaces that allow both activities are very important and have been taken into consideration in our project development.

### **Technology**

Presently, it is impossible to have working spaces without technology. This already starts at the point of entering any office space. Especially for closed offices it is important to control the access so that not everybody can get in. This is based on the human need of security.

The work environment in the area can be controlled automatically as well. To illustrate this, there are sensors in every room that measure the incoming natural light and the temperature. This allows the room to adapt the artificial light and the thermostat to create an ideal work environment. There are some monitors that allow the user to have an overview of the environment. They can also manually adjust this to suit their individual requirements.

The increase in technology within the workplace is there to increase working productivity and to aid in advancing the capabilities of the employee. With corresponding programmes and the internet, it is easily possible today to communicate with colleagues all over the world in real-time. Projectors and video conferences are also part of this. Those possibilities simplify and accelerate many processes.

Presenting results is easier and clearer by the use of smartboards because one can, not only, present motionless pictures but also display results more impressively. Even after a presentation has already started. More frequently used nowadays are cloud services. With these services sharing information and data - it is much easier and quicker.

In order to enable working in open spaces (rather than in closed offices) employees need mobile devices to continue their work wherever needed. Usually people can have laptops for these situations, but today tablets are more acclaimed because they are smaller and lighter. In order to improve working with tablets universally it would be helpful to integrate intelligent surfaces into tables throughout the company's working environment.

# lab test

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Questionnaire Lab test

**WORKSPACE TEST**

Age: 22  
Gender: Inmale

Height: 178cm  
Activities: working alone on a computer

1.Create your own workspace			
You will now see a serie of items on a table. Please, pick the items that you have on your own workspace and mark them below. This information will be registered.			
ITEMS	YES	ITEMS	YES
- Cups		Bottle	x
- Mouse	x	- Phone	
- Laptop	x	- Charger	
- Bin		- Extensor	
- Plants		- Paper	
- Pen holder	x	- Lamp	
- Photo frame		- Books	
- Mouse pad	x	- Backpack	

**2.Display tests:**

Display test 1: Alone, in front of window. Table measurements: 77cm Chair measurements: 49cm Space around the desk: 110cm	Display test 2: in front of the wall, someone behind Table measurements: 75,5cm Chair measurements: 51cm Space around the desk: 124cm	
Display your items and sit on the chair. Answer the following questions measuring your grade of satisfaction, being the 1 very unsatisfied and the 5 totally satisfied.		
CHARACTERISTICS	TEST 1	TEST 2
	1 2 3 4 5	1 2 3 4 5
The table is big enough, I can put all my items.		
The table is tall enough, I don't hit my knees.		
The table is deep enough, I can stretch my legs		
The chair is wide enough, I don't feel stuck.		
The chair is comfortable, I could sit here for long.		
The chair is high enough, my feet are flat on the floor.		
I'm comfortable with the environment around me.		
Comments: test1: better when the window is in his back because there is no sun in the face test2: wall (next to him) 1,68m. prefer not to have a colleague in his back		

Display test 3: shared with a wall Table measurements: 75cm Chair measurements: 49cm Space around the desk: 140cm Height of the wall: 140cm	Display test 4: shared without a wall Table measurements: Chair measurements: Space around the desk:	Display test 5: sitting on the shared table with others Table measurements: 71cm Chair measurements: 52cm Space around the desk: 112cm	
Display your items and sit on the chair. Answer the following questions measuring your grade of satisfaction, being the 1 very unsatisfied and the 5 totally satisfied.			
CHARACTERISTICS	TEST 3	TEST 4	TEST 5
	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
The table is big enough, I can put all my items.			
The table is tall enough, I don't hit my knees.			
The table is deep enough, I can stretch my legs			
The chair is wide enough, I don't feel stuck.			
The chair is comfortable, I could sit here for long.			
The chair is high enough, my feet are flat on the floor.			
I'm comfortable with the environment around me.			
Comments: test3: curved desk is great. wall (behind) 125cm without the wall it is better (being in contact with the colleagues) test4: without the wall better test5: Armrests are good; not enough space for three people; good for communication			

3. Choose your favourite desk:					
Answer the following questions					
	1	2	3	4	5
<b>Favourite desk</b>			x	x	
Why	big enough, curved, good communication				
Comments	-				
<b>Favourite chair</b>					x
Why	comfortable				
Comments	-				
<b>Favourite environment</b>			x	x	
Why	open environment to talk with others, but not too crowded like the last one				
Comments	-				

**WORKSPACE TEST**

Age:21  
Gender: male

Height: 184  
Activities: -

1.Create your own workspace			
You will now see a serie of items on a table. Please, pick the items that you have on your own workspace and mark them below. This information will be registered.			
ITEMS	YES	ITEMS	YES
- Cups		Bottle	x
- Mouse		- Phone	
- Laptop		- Charger	
- Bin		- Extensor	
- Plants		- Paper	
- Pen holder	x	- Lamp	
- Photo frame		- Books	x
- Mouse pad		- Backpack	

**2.Display tests:**

Display test 1: Alone, in front of window. Table measurements: 75cm Chair measurements: 50cm Space around the desk: 133cm	Display test 2: in front of the wall, someone behind Table measurements: 76cm Chair measurements: 50cm Space around the desk: 180cm	
Display your items and sit on the chair. Answer the following questions measuring your grade of satisfaction, being the 1 very unsatisfied and the 5 totally satisfied.		
	<b>TEST 1</b>	<b>TEST 2</b>
CHARACTERISTICS	1 2 3 4 5	1 2 3 4 5
The table is big enough, I can put all my items.		
The table is tall enough, I don't hit my knees.		
The table is deep enough, I can stretch my legs		
The chair is wide enough, I don't feel stuck.		
The chair is comfortable, I could sit here for long.		
The chair is high enough, my feet are flat on the floor.		
I'm comfortable with the environment around me.		
Comments: test1: big table, feel thight, discusting window, feel comfortable with window infort (clean) window on side better		

Display test 3: shared with a wall Table measurements: 75cm Chair measurements: 51cm Space around the desk: 156cm Height of the wall: 140cm	Display test 4: shared without a wall Table measurements: 75cm Chair measurements: 51cm Space around the desk: 156cm	Display test 5: sitting on the shared table with others Table measurements: 71 Chair measurements: 51cm Space around the desk: 127cm
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Display your items and sit on the chair. Answer the following questions measuring your grade of satisfaction, being the 1 very unsatisfied and the 5 totally satisfied.															
	TEST 3					TEST 4					TEST 5				
CHARACTERISTICS	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
The table is big enough, I can put all my items.					x					x				x	
The table is tall enough, I don't hit my knees.			x					x							x
The table is deep enough, I can stretch my legs					x					x					x
The chair is wide enough, I don't feel stuck.					x					x					x
The chair is comfortable, I could sit here for long.			x					x							x
The chair is high enough, my feet are flat on the floor.					x					x					x
I'm comfortable with the environment around me.			x							x					x
Comments: -															

3. Choose your favourite desk:					
Answer the following questions					
	1	2	3	4	5
<b>Favorite desk</b>			x	x	
Why	curved is good				
Comments	-				
<b>Favorite chair</b>					x
Why	It is soft and adjustable backrest				
Comments	-				
<b>Favorite environment</b>				x	
Why	see your colleague, nt staring at a wall, room behind you				
Comments	-				

**WORKSPACE TEST**

Age:21  
Gender:female

Height:1.65cm  
Activities:student

1.Create your own workspace			
You will now see a serie of items on a table. Please, pick the items that you have on your own workspace and mark them below. This information will be registered.			
ITEMS	YES	ITEMS	YES
- Cups		Bottle	
- Mouse	x	- Phone	
- Laptop	x	- Charger	
- Bin		- Extensor	
- Plants		- Paper	
- Pen holder	x	- Lamp	
- Photo frame		- Books	x
- Mouse pad	x	- Backpack	

**2.Display tests:**

Display test 1: Alone, in front of window. Table measurements: 77cm Chair measurements: 51cm Space around the desk: 180cm	Display test 2: in front of the wall, someone behind Table measurements: 76cm Chair measurements: 50cm Space around the desk:	
Display your items and sit on the chair. Answer the following questions measuring your grade of satisfaction, being the 1 very unsatisfied and the 5 totally satisfied.		
	TEST 1	TEST 2
CHARACTERISTICS	1 2 3 4 5	1 2 3 4 5
The table is big enough, I can put all my items.		
The table is tall enough, I don't hit my knees.		
The table is deep enough, I can stretch my legs		
The chair is wide enough, I don't feel stuck.		
The chair is comfortable, I could sit here for long.		
The chair is high enough, my feet are flat on the floor.		
I'm comfortable with the environment around me.		
Comments:-		

Display test 3: shared with a wall Table measurements: 77cm Chair measurements: 48cm Space around the desk: 158cm Height of the wall: 140cm	Display test 4: back against other Table measurements: 77cm Chair measurements: 48cm Space around the desk: 158cm	Display test 5: sitting on the shared table with others Table measurements: 71cm Chair measurements: 48cm Space around the desk: 117cm	
Display your items and sit on the chair. Answer the following questions measuring your grade of satisfaction, being the 1 very unsatisfied and the 5 totally satisfied.			
	TEST 3	TEST 4	TEST 5
CHARACTERISTICS	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
The table is big enough, I can put all my items.			
The table is tall enough, I don't hit my knees.			
The table is deep enough, I can stretch my legs			
The chair is wide enough, I don't feel stuck.			
The chair is comfortable, I could sit here for long.			
The chair is high enough, my feet are flat on the floor.			
I'm comfortable with the environment around me.			
Comments:-			

3. Choose your favourite desk:					
Answer the following questions					
	1	2	3	4	5
<b>Favourite desk</b>	x				
Why	not to big				
Comments	-				
<b>Favorite chair</b>	x		x	x	
Why	comfortable chair but not too comfortable like the "office chair" which is more for relaxing.				
Comments	-				
<b>Favorite environment</b>			x		
Why	more private				
Comments	with the wall in front but not with the wall in the back				

**WORKSPACE TEST**

Age: 20  
Gender: Male

Height: 1.76  
Activities: laptop work

1.Create your own workspace			
You will now see a serie of items on a table. Please, pick the items that you have on your own workspace and mark them below. This information will be registered.			
ITEMS	YES	ITEMS	YES
- Cups		Bottle	x
- Mouse	x	- Phone	
- Laptop	x	- Charger	
- Bin		- Extensor	
- Plants		- Paper	
- Pen holder		- Lamp	x
- Photo frame		- Books	x
- Mouse pad		- Backpack	

**2.Display tests:**

Display test 1: Alone, in front of window. Table measurements: 74cm Chair measurements: 51cm Space around the desk: 180cm	Display test 2: in front of the wall, someone behind Table measurements: 75cm Chair measurements: 51cm Space around the desk: 180cm	
Display your items and sit on the chair. Answer the following questions measuring your grade of satisfaction, being the 1 very unsatisfied and the 5 totally satisfied.		
CHARACTERISTICS	TEST 1	TEST 2
	1 2 3 4 5	1 2 3 4 5
The table is big enough, I can put all my items.		
The table is tall enough, I don't hit my knees.		
The table is deep enough, I can stretch my legs		
The chair is wide enough, I don't feel stuck.		
The chair is comfortable, I could sit here for long.		
The chair is high enough, my feet are flat on the floor.		
I'm comfortable with the environment around me.		
Comments:-		

Display test 3: shared with a wall Table measurements: 73cm Chair measurements: 48cm Space around the desk: 200cm Height of the wall: 140cm	Display test 4: shared without a wall Table measurements: 73cm Chair measurements: 48cm Space around the desk: 200cm	Display test 5: sitting on the shared table with others Table measurements: 71cm Chair measurements: 50cm Space around the desk: 128cm
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Display your items and sit on the chair. Answer the following questions measuring your grade of satisfaction, being the 1 very unsatisfied and the 5 totally satisfied.															
	TEST 3					TEST 4					TEST 5				
CHARACTERISTICS	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
The table is big enough, I can put all my items.					x					x			x		
The table is tall enough, I don't hit my knees.					x					x					x
The table is deep enough, I can stretch my legs					x					x			x		
The chair is wide enough, I don't feel stuck.			x						x						x
The chair is comfortable, I could sit here for long.			x						x						x
The chair is high enough, my feet are flat on the floor.					x					x					x
I'm comfortable with the environment around me.			x							x				x	
Comments:															

3. Choose your favourite desk:					
Answer the following questions					
	1	2	3	4	5
<b>Favourite desk</b>			x	x	
Why	<b>Bigger/ like curve</b>				
Comments	-				
<b>Favorite chair</b>					x
Why	<b>arm rest and hight adaptable</b>				
Comments	<b>the more you can change the better</b>				
<b>Favorite environment</b>				x	
Why	<b>more open. don't feel like in boxes</b>				
Comments	<b>friendlier environment.</b>				

**WORKSPACE TEST**

Age: 63  
Gender: Male

Height: 1.92  
Activities: Laptop work

1.Create your own workspace			
You will now see a serie of items on a table. Please, pick the items that you have on your own workspace and mark them below. This information will be registered.			
ITEMS	YES	ITEMS	YES
- Cups	x	- Bottle	x
- Mouse		- Phone	x
- Laptop	x	- Charger	
- Bin	x	- Extensor	
- Plants		- Paper	x
- Pen holder	x	- Lamp	
- Photo frame		- Books	x
- Mouse pad		- Backpack	

**2.Display tests:**

Display test 1: Alone, in front of window. Table measurements: 70 Chair measurements:55 Space around the desk: 180	Display test 2: in front of the wall, someone behind Table measurements: 68 Chair measurements: 58 Space around the desk: 180										
Display your items and sit on the chair. Answer the following questions measuring your grade of satisfaction, being the 1 very unsatisfied and the 5 totally satisfied.											
		TEST 1					TEST 2				
CHARACTERISTICS	1	2	3	4	5	1	2	3	4	5	
The table is big enough, I can put all my items.				x						x	
The table is tall enough, I don't hit my knees.		x					x				
The table is deep enough, I can stretch my legs		x							x		
The chair is wide enough, I don't feel stuck.				x			x				
The chair is comfortable, I could sit here for long.			x				x				
The chair is high enough, my feet are flat on the floor.					x		x				
I'm comfortable with the environment around me.			x				x				
Comments: test1: if walls on both sides will not be okay. Need space for wardrobe. good electrical stuff near. test2: he hits knees with cable management underneath table. window left very good. not good person on back. feels okay being enclosure with wall on one side if window on the left. moves wall to 105. better if see over sitting wall on one side (1.25 height wall)											

Display test 3: shared with a wall Table measurements: 70 Chair measurements:55 Space around the desk: 200 Height of the wall:140	Display test 4: back against other Table measurements: 70 Chair measurements: 55 Space around the desk: 200	Display test 5: sitting on the shared table with others Table measurements: 71 Chair measurements:55 Space around the desk: 130															
Display your items and sit on the chair. Answer the following questions measuring your grade of satisfaction, being the 1 very unsatisfied and the 5 totally satisfied.																	
			TEST 3					TEST 4					TEST 5				
CHARACTERISTICS	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5		
The table is big enough, I can put all my items.					x					x					x		
The table is tall enough, I don't hit my knees.		x					x						x				
The table is deep enough, I can stretch my legs					x					x					x		
The chair is wide enough, I don't feel stuck.				x					x						x		
The chair is comfortable, I could sit here for long.			x					x							x		
The chair is high enough, my feet are flat on the floor.					x					x					x		
I'm comfortable with the environment around me.				x			x								x		
Comments: test4: Need a wall to cover the cable and under table view. At least 10 cm of wall above the table (have an end). 111 cm for working stand. The person sitting down can feel uncomfortable. test5: take out items and not need a big screen table a bit too high																	

3. Choose your favourite desk:										
Answer the following questions										
						1	2	3	4	5
<b>Favorite desk</b>								x		
Why						<b>size of table</b>				
Comments						-				
<b>Favorite chair</b>										x
Why						<b>comfortable</b>				
Comments						-				
<b>Favorite environment</b>								x		
Why										
Comments						-				

**WORKSPACE TEST**

Age:  
Gender: male

Height:  
Activities:

1.Create your own workspace			
You will now see a serie of items on a table. Please, pick the items that you have on your own workspace and mark them below. This information will be registered.			
ITEMS	YES	ITEMS	YES
- Cups		Bottle	
- Mouse	x	- Phone	
- Laptop	x	- Charger	
- Bin	x	- Extensor	
- Plants		- Paper	
- Pen holder		- Lamp	
- Photo frame		- Books	
- Mouse pad		- Backpack	

**2.Display tests:**

Display test 1: Alone, in front of window. Table measurements: 70 Chair measurements:55 Space around the desk:121	Display test 2: in front of the wall, someone behind Table measurements: 69 Chair measurements:47 Space around the desk: 125	
Display your items and sit on the chair. Answer the following questions measuring your grade of satisfaction, being the 1 very unsatisfied and the 5 totally satisfied.		
	<b>TEST 1</b>	<b>TEST 2</b>
CHARACTERISTICS	1 2 3 4 5	1 2 3 4 5
The table is big enough, I can put all my items.		
The table is tall enough, I don't hit my knees.		
The table is deep enough, I can stretch my legs		
The chair is wide enough, I don't feel stuck.		
The chair is comfortable, I could sit here for long.		
The chair is high enough, my feet are flat on the floor.		
I'm comfortable with the environment around me.		
Comments: test1: window not fine in front because of sun. better on side. 105 wall distance test2: depends on the task he is realizing and the person he is working with.		

Display test 3: shared with a wall Table measurements: 71 Chair measurements: 50 Space around the desk: 126 Height of the wall: 140	Display test 4: back against other Table measurements: 71 Chair measurements: 50 Space around the desk: 126	Display test 5: sitting on the shared table with others Table measurements: 71 Chair measurements: 47 Space around the desk: 82
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Display your items and sit on the chair. Answer the following questions measuring your grade of satisfaction, being the 1 very unsatisfied and the 5 totally satisfied.															
	TEST 3					TEST 4					TEST 5				
CHARACTERISTICS	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
The table is big enough, I can put all my items.			x					x					x		
The table is tall enough, I don't hit my knees.					x					x					x
The table is deep enough, I can stretch my legs					x					x					x
The chair is wide enough, I don't feel stuck.					x					x					x
The chair is comfortable, I could sit here for long.					x					x			x		
The chair is high enough, my feet are flat on the floor.					x					x					x
I'm comfortable with the environment around me.				x		x									x
Comments: test3: daylight on screen with window on back. test4: easily disturbed by other mates. test5: only use this table for meetings. not have all things on it just a notebook															

3. Choose your favourite desk:					
Answer the following questions					
	1	2	3	4	5
<b>Favourite desk</b>		x	x		
Why	-				
Comments	-				
<b>Favourite chair</b>					x
Why	-				
Comments	-				
<b>Favourite environment</b>		x			
Why	concentration work				
Comments	not distracted easily				

**WORKSPACE TEST**

Age: 26  
Gender: female

Height: 1.52  
Activities: laptopwork

1.Create your own workspace			
You will now see a serie of items on a table. Please, pick the items that you have on your own workspace and mark them below. This information will be registered.			
ITEMS	YES	ITEMS	YES
- Cups		Bottle	
- Mouse	x	- Phone	
- Laptop	x	- Charger	
- Bin		- Extensor	
- Plants		- Paper	
- Pen holder	x	- Lamp	
- Photo frame		- Books	
- Mouse pad		- Backpack	

**2.Display tests:**

Display test 1: Alone, in front of window. Table measurements: 64 Chair measurements: 41 Space around the desk: 90	Display test 2: in front of the wall, someone behind Table measurements: 68 Chair measurements: 41 Space around the desk: 90										
Display your items and sit on the chair. Answer the following questions measuring your grade of satisfaction, being the 1 very unsatisfied and the 5 totally satisfied.											
		TEST 1					TEST 2				
CHARACTERISTICS	1	2	3	4	5	1	2	3	4	5	
The table is big enough, I can put all my items.					x					x	
The table is tall enough, I don't hit my knees.					x					x	
The table is deep enough, I can stretch my legs					x					x	
The chair is wide enough, I don't feel stuck.					x					x	
The chair is comfortable, I could sit here for long.			x						x		
The chair is high enough, my feet are flat on the floor.					x					x	
I'm comfortable with the environment around me.					x	x					
Comments: test1: front window is better than side window because it's less distraction if people passing by. dont like open spaces test2: not comfortable with people behind because she feels like being watched. wall (side) 94cm											

Display test 3: shared with a wall Table measurements: 64 Chair measurements: 41 Space around the desk: 93 Height of the wall:	Display test 4: back against other Table measurements: Chair measurements: Space around the desk:	Display test 5: sitting on the shared table with others Table measurements: Chair measurements: 43 Space around the desk: 87															
Display your items and sit on the chair. Answer the following questions measuring your grade of satisfaction, being the 1 very unsatisfied and the 5 totally satisfied.																	
			TEST 3					TEST 4					TEST 5				
CHARACTERISTICS	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5		
The table is big enough, I can put all my items.					x					x					x		
The table is tall enough, I don't hit my knees.					x					x				x			
The table is deep enough, I can stretch my legs					x					x					x		
The chair is wide enough, I don't feel stuck.					x					x					x		
The chair is comfortable, I could sit here for long.			x					x							x		
The chair is high enough, my feet are flat on the floor.					x					x					x		
I'm comfortable with the environment around me.					x	x					x						
Comments: test3: not comfortable that people can walk beside her. 85 cm from desk to wall behind her to feel comfortable. test4: prefers person next not in front, Better if person know each other. test5: prefers having wall on back and door sideways. not enough to write and have laptop at the same time. table too tall. stretch legs depending on the other peoples size. for meeting is fine but for a workspace is very uncomfortable with the other people.																	

3. Choose your favourite desk:										
Answer the following questions										
						1	2	3	4	5
Favorite desk								x		
Why						the curve				
Comments						more stuff need to things				
Favorite chair										x
Why						-				
Comments						-				
Favorite environment						x				
Why						completely alone				
Comments						have walls behind you				

**WORKSPACE TEST**

Age:26  
Gender: male

Height: 169  
Activities: laptop work and reading

1.Create your own workspace			
You will now see a serie of items on a table. Please, pick the items that you have on your own workspace and mark them below. This information will be registered.			
ITEMS	YES	ITEMS	YES
- Cups		Bottle	
- Mouse		- Phone	
- Laptop		- Charger	
- Bin		- Extensor	
- Plants		- Paper	
- Pen holder		- Lamp	
- Photo frame		- Books	
- Mouse pad		- Backpack	

**2.Display tests:**

Display test 1: Alone, in front of window. Table measurements: 75cm Chair measurements: 41cm Space around the desk: 118cm	Display test 2: in front of the wall, someone behind Table measurements: 72cm Chair measurements: 41cm Space around the desk: 122cm	
Display your items and sit on the chair. Answer the following questions measuring your grade of satisfaction, being the 1 very unsatisfied and the 5 totally satisfied.		
CHARACTERISTICS	TEST 1	TEST 2
	1 2 3 4 5	1 2 3 4 5
The table is big enough, I can put all my items.		
The table is tall enough, I don't hit my knees.		
The table is deep enough, I can stretch my legs		
The chair is wide enough, I don't feel stuck.		
The chair is comfortable, I could sit here for long.		
The chair is high enough, my feet are flat on the floor.		
I'm comfortable with the environment around me.		
Comments: test2: to boxed, more space in front, doesn't bother you at all. Neither the window or the person working behind bothers him. 85 cm from middle back to the side wall		

Display test 3: shared with a wall Table measurements: 71 cm Chair measurements: 42cm Space around the desk: 106 cm Height of the wall:	Display test 4: back against other Table measurements: Chair measurements: Space around the desk:	Display test 5: sitting on the shared table with others Table measurements: Chair measurements: 42cm Space around the desk: 99cm	
Display your items and sit on the chair. Answer the following questions measuring your grade of satisfaction, being the 1 very unsatisfied and the 5 totally satisfied.			
CHARACTERISTICS	TEST 3	TEST 4	TEST 5
	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
The table is big enough, I can put all my items.			
The table is tall enough, I don't hit my knees.			
The table is deep enough, I can stretch my legs			
The chair is wide enough, I don't feel stuck.			
The chair is comfortable, I could sit here for long.			
The chair is high enough, my feet are flat on the floor.			
I'm comfortable with the environment around me.			
Comments: test3: 82 cm from table to wall			

3. Choose your favourite desk:					
Answer the following questions					
	1	2	3	4	5
<b>Favourite desk</b>	x	x			
Why	Because of the shape				
Comments	I don't like the shape of the 3rd desk, but I like the color				
<b>Favourite chair</b>					x
Why	Comfy, armrest				
Comments	-				
<b>Favourite environment</b>	x				
Why	The window				
Comments	-				

**WORKSPACE TEST**

Age:  
Gender: Male

Height: 1.78  
Activities: laptopwork/ meeting

1.Create your own workspace			
You will now see a serie of items on a table. Please, pick the items that you have on your own workspace and mark them below. This information will be registered.			
ITEMS	YES	ITEMS	YES
- Cups		Bottle	
- Mouse		- Phone	
- Laptop	x	- Charger	
- Bin		- Extensor	
- Plants		- Paper	
- Pen holder		- Lamp	
- Photo frame		- Books	
- Mouse pad		- Backpack	

**2.Display tests:**

Display test 1: Alone, in front of window. Table measurements: 113cm Chair measurements: no Space around the desk:93	Display test 2: in front of the wall, someone behind Table measurements: 114cm Chair measurements: no Space around the desk: 127										
Display your items and sit on the chair. Answer the following questions measuring your grade of satisfaction, being the 1 very unsatisfied and the 5 totally satisfied.											
	<b>TEST 1</b>	<b>TEST 2</b>									
CHARACTERISTICS	1	2	3	4	5	1	2	3	4	5	
The table is big enough, I can put all my items.					x						x
The table is tall enough, I don't hit my knees.					x						x
The table is deep enough, I can stretch my legs					x						x
The chair is wide enough, I don't feel stuck.											
The chair is comfortable, I could sit here for long.											
The chair is high enough, my feet are flat on the floor.											
I'm comfortable with the environment around me.			x					x			
Comments: <b>test1:</b> don't mind if the table is a bit smaller. prefer window in front. more windows is better. <b>test2:</b> don't like window in back. don't like people in back. don't like people liking to screen. window distraction sideway back. 65 cm from middle back to wall. would place table with an angle to have more screen privacy.											

Display test 3: shared with a wall Table measurements: 76 Chair measurements:49 Space around the desk: Height of the wall:	Display test 4: back against other Table measurements: Chair measurements: Space around the desk:	Display test 5: sitting on the shared table with others Table measurements: Chair measurements:51 Space around the desk: 66
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Display your items and sit on the chair. Answer the following questions measuring your grade of satisfaction, being the 1 very unsatisfied and the 5 totally satisfied.															
	TEST 3					TEST 4					TEST 5				
CHARACTERISTICS	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
The table is big enough, I can put all my items.					x					x				x	
The table is tall enough, I don't hit my knees.					x					x			x		
The table is deep enough, I can stretch my legs					x					x			x		
The chair is wide enough, I don't feel stuck.															x
The chair is comfortable, I could sit here for long.															x
The chair is high enough, my feet are flat on the floor.															x
I'm comfortable with the environment around me.					x					x					x
Comments: <b>test3:</b> don't like window on back. don't like people looking at screen. prefer looking to window. if you have control over the time people are looking at screen its fine. not fine with people looking all the time to screen. 1m to feel fine with wall on back. enjoy depth of table <b>test4:</b> would have second screen. more privacy. fine to have someone on front. parical coverage. sound coverage <b>test5:</b> anyone behind. short work is fine. feels like not enough if looking at papers while having laptop. feels like borders are divisions of space. table is a bit low. 105 cm between the desk and him to be comfortable.															

3. Choose your favourite desk:					
Answer the following questions					
	1	2	3	4	5
<b>Favorite desk</b>	x				
Why	<b>better straight</b>				
Comments	-				
<b>Favorite chair</b>					x
Why	-				
Comments	-				
<b>Favorite environment</b>	x				
Why	<b>with window not having to think about the people behind him.</b>				
Comments	-				

**WORKSPACE TEST**

Age:  
Gender: female

Height: 1.67  
Activities: laptopworking

1.Create your own workspace			
You will now see a serie of items on a table. Please, pick the items that you have on your own workspace and mark them below. This information will be registered.			
ITEMS	YES	ITEMS	YES
- Cups		Bottle	x
- Mouse	x	- Phone	x
- Laptop	x	- Charger	
- Bin	x	- Extensor	
- Plants		- Paper	
- Pen holder	x	- Lamp	
- Photo frame	x	- Books	x
- Mouse pad	x	- Backpack	

**2.Display tests:**

Display test 1: Alone, in front of window. Table measurements: 78 Chair measurements: 50 Space around the desk: 164	Display test 2: in front of the wall, someone behind Table measurements: 77 Chair measurements: 49cm Space around the desk: 180cm	
Display your items and sit on the chair. Answer the following questions measuring your grade of satisfaction, being the 1 very unsatisfied and the 5 totally satisfied.		
	TEST 1	TEST 2
CHARACTERISTICS	1 2 3 4 5	1 2 3 4 5
The table is big enough, I can put all my items.		
The table is tall enough, I don't hit my knees.		
The table is deep enough, I can stretch my legs		
The chair is wide enough, I don't feel stuck.		
The chair is comfortable, I could sit here for long.		
The chair is high enough, my feet are flat on the floor.		
I'm comfortable with the environment around me.		
Comments:		

Display test 3: shared with a wall Table measurements: 73 Chair measurements: 54 Space around the desk: 174 Height of the wall:	Display test 4: back against other Table measurements: Chair measurements: Space around the desk:	Display test 5: sitting on the shared table with others Table measurements: Chair measurements:49 Space around the desk: 137
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Display your items and sit on the chair. Answer the following questions measuring your grade of satisfaction, being the 1 very unsatisfied and the 5 totally satisfied.															
	TEST 3					TEST 4					TEST 5				
CHARACTERISTICS	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
The table is big enough, I can put all my items.					x						x				
The table is tall enough, I don't hit my knees.					x										x
The table is deep enough, I can stretch my legs					x										x
The chair is wide enough, I don't feel stuck.					x										x
The chair is comfortable, I could sit here for long.					x										x
The chair is high enough, my feet are flat on the floor.					x										x
I'm comfortable with the environment around me.			x					x			x				
Comments: test3: wants more to see their colleague; wall behind is not good -> more space would be better test4: comfort depends on the relationship with the other person -> working together would be better test5: for meetings it is okay															

3. Choose your favourite desk:					
Answer the following questions					
	1	2	3	4	5
<b>Favourite desk</b>			x	x	
Why	curve was good - seemed to be more room; colour was better				
Comments	-				
<b>Favourite chair</b>					x
Why	moving back is good				
Comments	-				
<b>Favourite environment</b>	x				
Why	window				
Comments	-				

**WORKSPACE TEST**

Age: 20  
Gender: male

Height: 184  
Activities: laptop work, eating

1.Create your own workspace			
You will now see a serie of items on a table. Please, pick the items that you have on your own workspace and mark them below. This information will be registered.			
ITEMS	YES	ITEMS	YES
- Cups		Bottle	x
- Mouse	x	- Phone	
- Laptop	x	- Charger	
- Bin		- Extensor	
- Plants		- Paper	
- Pen holder		- Lamp	
- Photo frame		- Books	
- Mouse pad		- Backpack	

**2.Display tests:**

Display test 1: Alone, in front of window. Table measurements: 76 Chair measurements:53 Space around the desk: 100	Display test 2: in front of the wall, someone behind Table measurements:76 Chair measurements:53 Space around the desk: 80										
Display your items and sit on the chair. Answer the following questions measuring your grade of satisfaction, being the 1 very unsatisfied and the 5 totally satisfied.											
	<b>TEST 1</b>	<b>TEST 2</b>									
CHARACTERISTICS	1	2	3	4	5	1	2	3	4	5	
The table is big enough, I can put all my items.					x						x
The table is tall enough, I don't hit my knees.					x						x
The table is deep enough, I can stretch my legs			x							x	
The chair is wide enough, I don't feel stuck.				x					x		
The chair is comfortable, I could sit here for long.				x					x		
The chair is high enough, my feet are flat on the floor.					x						x
I'm comfortable with the environment around me.				x			x				
Comments: test1: should be more space around the table test2: constricted; 150cm to wall											

Display test 3: shared with a wall Table measurements: 73 Chair measurements: 55 Space around the desk: 80 Height of the wall: 140	Display test 4: back against other Table measurements: 73 Chair measurements: 55 Space around the desk: 80	Display test 5: sitting on the shared table with others Table measurements: 71 Chair measurements: Space around the desk:													
Display your items and sit on the chair. Answer the following questions measuring your grade of satisfaction, being the 1 very unsatisfied and the 5 totally satisfied.															
	<b>TEST 3</b>	<b>TEST 4</b>	<b>TEST 5</b>												
CHARACTERISTICS	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
The table is big enough, I can put all my items.				x						x				x	
The table is tall enough, I don't hit my knees.					x					x					x
The table is deep enough, I can stretch my legs					x					x				x	
The chair is wide enough, I don't feel stuck.				x						x					x
The chair is comfortable, I could sit here for long.					x					x					x
The chair is high enough, my feet are flat on the floor.					x					x					x
I'm comfortable with the environment around me.					x			x						x	
Comments: test3: table is too big test4: half wall would be perfect															

3. Choose your favourite desk:					
Answer the following questions					
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Favorite desk</b>	x	x			
Why	perfect size				
Comments	-				
<b>Favorite chair</b>					x
Why	comfortable				
Comments	-				
<b>Favorite environment</b>	x				
Why	-				
Comments	If it was group work then 4 with a half wall				

**WORKSPACE TEST**

Age: 21  
Gender: female

Height: 163  
Activities: computer work

1.Create your own workspace			
You will now see a serie of items on a table. Please, pick the items that you have on your own workspace and mark them below. This information will be registered.			
ITEMS	YES	ITEMS	YES
- Cups		Bottle	
- Mouse		- Phone	
- Laptop	x	- Charger	
- Bin		- Extensor	
- Plants		- Paper	
- Pen holder		- Lamp	
- Photo frame		- Books	x
- Mouse pad		- Backpack	

**2.Display tests:**

Display test 1: Alone, in front of window. Table measurements: 79 Chair measurements:50 Space around the desk: 85	Display test 2: in front of the wall, someone behind Table measurements: 82 Chair measurements: 52 Space around the desk: 87									
Display your items and sit on the chair. Answer the following questions measuring your grade of satisfaction, being the 1 very unsatisfied and the 5 totally satisfied.										
	TEST 1					TEST 2				
CHARACTERISTICS	1	2	3	4	5	1	2	3	4	5
The table is big enough, I can put all my items.			x							x
The table is tall enough, I don't hit my knees.				x				x		
The table is deep enough, I can stretch my legs				x						x
The chair is wide enough, I don't feel stuck.		x				x				
The chair is comfortable, I could sit here for long.		x				x				
The chair is high enough, my feet are flat on the floor.				x					x	
I'm comfortable with the environment around me.			x					x		
Comments:										

Display test 3: shared with a wall Table measurements: 79 Chair measurements:54 Space around the desk: 90 Height of the wall:	Display test 4: back against other Table measurements: 79 Chair measurements: 54 Space around the desk: 90	Display test 5: sitting on the shared table with others Table measurements: 71 Chair measurements: 54 Space around the desk:
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Display your items and sit on the chair. Answer the following questions measuring your grade of satisfaction, being the 1 very unsatisfied and the 5 totally satisfied.															
	TEST 3					TEST 4					TEST 5				
CHARACTERISTICS	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
The table is big enough, I can put all my items.			x											x	
The table is tall enough, I don't hit my knees.			x										x		
The table is deep enough, I can stretch my legs				x									x		
The chair is wide enough, I don't feel stuck.				x										x	
The chair is comfortable, I could sit here for long.		x													x
The chair is high enough, my feet are flat on the floor.			x												x
I'm comfortable with the environment around me.	x								x					x	
Comments:															

3. Choose your favourite desk:					
Answer the following questions					
	1	2	3	4	5
<b>Favorite desk</b>			x	x	
Why	curves are good				
Comments	-				
<b>Favorite chair</b>					x
Why	comfortable; armrests				
Comments	-				
<b>Favorite environment</b>		x			
Why	window on the side				
Comments	-				

**WORKSPACE TEST**

Age: 23  
Gender: male

Height: 1.70  
Activities: laptop activities

1.Create your own workspace			
You will now see a serie of items on a table. Please, pick the items that you have on your own workspace and mark them below. This information will be registered.			
ITEMS	YES	ITEMS	YES
- Cups		Bottle	x
- Mouse		- Phone	
- Laptop	x	- Charger	
- Bin		- Extensor	
- Plants		- Paper	
- Pen holder		- Lamp	
- Photo frame		- Books	x
- Mouse pad		- Backpack	

**2.Display tests:**

Display test 1: Alone, in front of window. Table measurements: 72 Chair measurements: 51 Space around the desk: 115	Display test 2: in front of the wall, someone behind Table measurements: 78 Chair measurements: 53 Space around the desk: 113	
Display your items and sit on the chair. Answer the following questions measuring your grade of satisfaction, being the 1 very unsatisfied and the 5 totally satisfied.		
	<b>TEST 1</b>	<b>TEST 2</b>
CHARACTERISTICS	1 2 3 4 5	1 2 3 4 5
The table is big enough, I can put all my items.		
The table is tall enough, I don't hit my knees.		
The table is deep enough, I can stretch my legs		
The chair is wide enough, I don't feel stuck.		
The chair is comfortable, I could sit here for long.		
The chair is high enough, my feet are flat on the floor.		
I'm comfortable with the environment around me.		
Comments: test1: the table is big. the window is fine on front but the space feels a bit empty. distracted with the window test2: not giving back back to someone. 118 from middle to wall		

Display test 3: shared with a wall Table measurements: 75 Chair measurements: 50 Space around the desk: 102 Height of the wall:	Display test 4: back against other Table measurements: 75 Chair measurements: 50 Space around the desk: 102	Display test 5: sitting on the shared table with others Table measurements: 71 Chair measurements: 47 Space around the desk: 93	
Display your items and sit on the chair. Answer the following questions measuring your grade of satisfaction, being the 1 very unsatisfied and the 5 totally satisfied.			
	<b>TEST 3</b>	<b>TEST 4</b>	<b>TEST 5</b>
CHARACTERISTICS	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
The table is big enough, I can put all my items.			
The table is tall enough, I don't hit my knees.			
The table is deep enough, I can stretch my legs			
The chair is wide enough, I don't feel stuck.			
The chair is comfortable, I could sit here for long.			
The chair is high enough, my feet are flat on the floor.			
I'm comfortable with the environment around me.			
Comments: test3: the table is big but it is not bad to have more space. space between the wall and his chair is fine test4: not good because he gets more distracted. test5: prefer a close more private space.			

3. Choose your favourite desk:					
Answer the following questions					
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Favourite desk</b>			x		
Why	shape				
Comments	-				
<b>Favourite chair</b>					x
Why	-				
Comments	-				
<b>Favourite environment</b>	x				
Why	the light is better and helps you to be more active				
Comments	-				

**WORKSPACE TEST**

Age: 20  
Gender: female

Height: 173cm  
Activities: laptopwork

1.Create your own workspace			
You will now see a serie of items on a table. Please, pick the items that you have on your own workspace and mark them below. This information will be registered.			
ITEMS	YES	ITEMS	YES
- Cups		Bottle	x
- Mouse		- Phone	
- Laptop	x	- Charger	
- Bin		- Extensor	
- Plants		- Paper	
- Pen holder	x	- Lamp	
- Photo frame	x	- Books	x
- Mouse pad		- Backpack	

**2.Display tests:**

Display test 1: Alone, in front of window. Table measurements: 77 Chair measurements:51 Space around the desk: 110	Display test 2: in front of the wall, someone behind Table measurements: 78 Chair measurements: 51 Space around the desk: 110									
Display your items and sit on the chair. Answer the following questions measuring your grade of satisfaction, being the 1 very unsatisfied and the 5 totally satisfied.										
	TEST 1					TEST 2				
CHARACTERISTICS	1	2	3	4	5	1	2	3	4	5
The table is big enough, I can put all my items.					x					x
The table is tall enough, I don't hit my knees.					x					x
The table is deep enough, I can stretch my legs				x						x
The chair is wide enough, I don't feel stuck.		x						x		
The chair is comfortable, I could sit here for long.		x				x				
The chair is high enough, my feet are flat on the floor.				x					x	
I'm comfortable with the environment around me.		x							x	
Comments: test1: when bigger the space the more things you want to put on the space.										

Display test 3: shared with a wall Table measurements: 77 Chair measurements:52 Space around the desk: 130 Height of the wall:	Display test 4: back against other Table measurements: 77 Chair measurements: 52 Space around the desk: 150	Display test 5: sitting on the shared table with others Table measurements: 52 Chair measurements:52 Space around the desk:													
Display your items and sit on the chair. Answer the following questions measuring your grade of satisfaction, being the 1 very unsatisfied and the 5 totally satisfied.															
	TEST 3					TEST 4					TEST 5				
CHARACTERISTICS	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
The table is big enough, I can put all my items.					x					x					x
The table is tall enough, I don't hit my knees.					x					x	x				
The table is deep enough, I can stretch my legs					x					x	x				
The chair is wide enough, I don't feel stuck.		x						x							x
The chair is comfortable, I could sit here for long.		x						x							x
The chair is high enough, my feet are flat on the floor.				x					x						x
I'm comfortable with the environment around me.					x				x				x		
Comments: test3: likes that wall helps to avoid distractions. likes curve of the wall.															

3. Choose your favourite desk:					
Answer the following questions					
	1	2	3	4	5
<b>Favourite desk</b>			x		
Why	material and shape.				
Comments	gray is more depressing color.				
<b>Favourite chair</b>					x
Why	-				
Comments	-				
<b>Favourite environment</b>			x		
Why	likes wall in between, and likes wall behind because of feeling nobody is watching.				
Comments	-				

**WORKSPACE TEST**

Age: 21  
Gender: Female

Height: 1.60  
Activities: laptop work, eating and sketching

1.Create your own workspace			
You will now see a serie of items on a table. Please, pick the items that you have on your own workspace and mark them below. This information will be registered.			
ITEMS	YES	ITEMS	YES
- Cups		Bottle	x
- Mouse	x	- Phone	
- Laptop	x	- Charger	
- Bin		- Extensor	
- Plants	x	- Paper	
- Pen holder		- Lamp	x
- Photo frame		- Books	x
- Mouse pad		- Backpack	

**2.Display tests:**

Display test 1: Alone, in front of window. Table measurements: 70 Chair measurements:46 Space around the desk: 134	Display test 2: in front of the wall, someone behind Table measurements: 75 Chair measurements: 52 Space around the desk: 153	
Display your items and sit on the chair. Answer the following questions measuring your grade of satisfaction, being the 1 very unsatisfied and the 5 totally satisfied.		
CHARACTERISTICS	TEST 1	TEST 2
The table is big enough, I can put all my items.	1 2 3 4 5	1 2 3 4 5
The table is tall enough, I don't hit my knees.		
The table is deep enough, I can stretch my legs		
The chair is wide enough, I don't feel stuck.		
The chair is comfortable, I could sit here for long.		
The chair is high enough, my feet are flat on the floor.		
I'm comfortable with the environment around me.		
Comments: window in front is good but can be a distraction. likes natural light but not sure to have light straight to eyes. does not like first chair because she can not sit as usually test2: likes window on side but feels claustrophobic. better is window was on desk height but does not like to have somebody working on her back. like this chair better because of the feet position. 160 from middle to wall to feel comfortable.		

Display test 3: shared with a wall Table measurements: 60 Chair measurements: 41 Space around the desk: 172 Height of the wall: 140	Display test 4: back against other Table measurements: 60 Chair measurements: 41 Space around the desk: 172	Display test 5: sitting on the shared table with others Table measurements: 71 Chair measurements: 48 Space around the desk: 120
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Display your items and sit on the chair. Answer the following questions measuring your grade of satisfaction, being the 1 very unsatisfied and the 5 totally satisfied.															
	TEST 3					TEST 4					TEST 5				
CHARACTERISTICS	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
The table is big enough, I can put all my items.					x					x	x				
The table is tall enough, I don't hit my knees.					x					x		x			
The table is deep enough, I can stretch my legs					x					x			x		
The chair is wide enough, I don't feel stuck.					x					x					x
The chair is comfortable, I could sit here for long.		x						x							x
The chair is high enough, my feet are flat on the floor.					x					x					x
I'm comfortable with the environment around me.					x			x							x
Comments: test 3: likes table but not sure of curve (shape). She needs a wall marking end of table. She feels wall is too high. feels comfortable with 98cm from wall to her chair. test 4: don't like to look under her table. feels distracted with other person in front. don't like that her mate's table is taller than hers. she will be wanting to talk to the person in front all the time. test 5: the table is too tall. for working in group is fine but for concentration is not. Fall asleep easily in the chair. Chair gives sensation of falling.															

3. Choose your favourite desk:					
Answer the following questions					
	1	2	3	4	5
<b>Favorite desk</b>			x		
Why	<b>biggest and appearance. likes size not shape.</b>				
Comments	-				
<b>Favorite chair</b>					x
Why	<b>grip on the part to place feet.</b>				
Comments	-				
<b>Favorite environment</b>			x		
Why	<b>with lower walls</b>				
Comments	-				

**WORKSPACE TEST**

Age: 22  
Gender: female

Height: 163cm  
Activities: laptop work

1.Create your own workspace			
You will now see a serie of items on a table. Please, pick the items that you have on your own workspace and mark them below. This information will be registered.			
ITEMS	YES	ITEMS	YES
- Cups		Bottle	x
- Mouse	x	- Phone	
- Laptop		- Charger	
- Bin	x	- Extensor	
- Plants		- Paper	
- Pen holder	x	- Lamp	
- Photo frame		- Books	x
- Mouse pad	x	- Backpack	

**2.Display tests:**

Display test 1: Alone, in front of window. Table measurements: 74 Chair measurements:50 Space around the desk:118	Display test 2: in front of the wall, someone behind Table measurements: 75 Chair measurements:51 Space around the desk: 133									
Display your items and sit on the chair. Answer the following questions measuring your grade of satisfaction, being the 1 very unsatisfied and the 5 totally satisfied.										
	TEST 1	TEST 2								
CHARACTERISTICS	1	2	3	4	5	1	2	3	4	5
The table is big enough, I can put all my items.					x					x
The table is tall enough, I don't hit my knees.					x					x
The table is deep enough, I can stretch my legs			x							x
The chair is wide enough, I don't feel stuck.				x				x		
The chair is comfortable, I could sit here for long.			x					x		
The chair is high enough, my feet are flat on the floor.					x					x
I'm comfortable with the environment around me.			x						x	
Comments: test1: Don't like window in front would be better on side. She doesn't like having desk facing wall and not knowing what is happening behind her. having a window is good. test2: don't feel comfortable with someone behind her. 120 distance from the middle of back to the wall.										

Display test 3: shared with a wall Table measurements: 71 Chair measurements: 47 Space around the desk: 132 Height of the wall:	Display test 4: back against other Table measurements: 71 Chair measurements: 47 Space around the desk: 132	Display test 5: sitting on the shared table with others Table measurements: Chair measurements:49 Space around the desk: 122
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Display your items and sit on the chair. Answer the following questions measuring your grade of satisfaction, being the 1 very unsatisfied and the 5 totally satisfied.															
	TEST 3					TEST 4					TEST 5				
CHARACTERISTICS	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
The table is big enough, I can put all my items.					x					x			x		
The table is tall enough, I don't hit my knees.					x					x				x	
The table is deep enough, I can stretch my legs					x					x				x	
The chair is wide enough, I don't feel stuck.				x						x					x
The chair is comfortable, I could sit here for long.			x						x						x
The chair is high enough, my feet are flat on the floor.					x					x					x
I'm comfortable with the environment around me.					x	x								x	
Comments: test3: feels good with both walls. likes the feeling that nobody will disturb her.102 cm distance from chair to the wall. test4: distracted with the other person and does not feel very comfortable while the other person sees her doing everything. she prefers a wall in between test5: for working a short time is good but she will feel distracted with other noises like typing on computer and she will not be able to fit all her stuff on the table.															

3. Choose your favourite desk:					
Answer the following questions					
	1	2	3	4	5
<b>Favourite desk</b>			x	x	
Why	<b>feels better, material, shape and size</b>				
Comments	-				
<b>Favourite chair</b>					x
Why	<b>comfortable and can lean back when resting</b>				
Comments	-				
<b>Favourite environment</b>			x		
Why	<b>have private space with no one behind her.</b>				
Comments	-				

**WORKSPACE TEST**

Age: 26  
Gender: Male

Height: 186cm  
Activities: laptop work

1.Create your own workspace			
You will now see a serie of items on a table. Please, pick the items that you have on your own workspace and mark them below. This information will be registered.			
ITEMS	YES	ITEMS	YES
- Cups		Bottle	
- Mouse		- Phone	
- Laptop	x	- Charger	
- Bin	x	- Extensor	
- Plants		- Paper	
- Pen holder		- Lamp	x
- Photo frame		- Books	x
- Mouse pad		- Backpack	

**2.Display tests:**

Display test 1: Alone, in front of window. Table measurements: 114 Chair measurements: no chair Space around the desk: 180	Display test 2: in front of the wall, someone behind Table measurements: 80 Chair measurements: 50 Space around the desk: 180										
Display your items and sit on the chair. Answer the following questions measuring your grade of satisfaction, being the 1 very unsatisfied and the 5 totally satisfied.											
	<b>TEST 1</b>	<b>TEST 2</b>									
CHARACTERISTICS	1	2	3	4	5	1	2	3	4	5	
The table is big enough, I can put all my items.					x						x
The table is tall enough, I don't hit my knees.					x						x
The table is deep enough, I can stretch my legs											x
The chair is wide enough, I don't feel stuck.											x
The chair is comfortable, I could sit here for long.							x				
The chair is high enough, my feet are flat on the floor.											x
I'm comfortable with the environment around me.				x			x				
Comments: test2: looking at wall is not that nice . having someone on back makes him feel the room is smaller. 98cm from middle of back to wall											

Display test 3: shared with a wall Table measurements: 78 Chair measurements:51 Space around the desk:153 Height of the wall:	Display test 4: back against other Table measurements: 78 Chair measurements: 51 Space around the desk: 153	Display test 5: sitting on the shared table with others Table measurements: Chair measurements: 49 Space around the desk:107													
Display your items and sit on the chair. Answer the following questions measuring your grade of satisfaction, being the 1 very unsatisfied and the 5 totally satisfied.															
	<b>TEST 3</b>	<b>TEST 4</b>	<b>TEST 5</b>												
CHARACTERISTICS	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
The table is big enough, I can put all my items.					x					x					x
The table is tall enough, I don't hit my knees.					x					x	x				
The table is deep enough, I can stretch my legs					x					x	x				
The chair is wide enough, I don't feel stuck.					x					x	x				
The chair is comfortable, I could sit here for long.			x					x							x
The chair is high enough, my feet are flat on the floor.					x					x					x
I'm comfortable with the environment around me.	x							x			x				
Comments: test3: it feels like closing you in . 115cm from chair to wall. makes you feel like you can't look outside. test4: does not bother the different height of tables. test5: table is too low. working in group is okay but for tasks its not.															

3. Choose your favourite desk:					
Answer the following questions					
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Favourite desk</b>			x		
Why	size, shape				
Comments	-				
<b>Favourite chair</b>					x
Why	comfortable				
Comments	-				
<b>Favourite environment</b>	x				
Why					
Comments	-				

WORKSPACE TEST

Age: 32  
Gender: female

Height: 164  
Activities: laptopwork

1.Create your own workspace			
You will now see a serie of items on a table. Please, pick the items that you have on your own workspace and mark them below. This information will be registered.			
ITEMS	YES	ITEMS	YES
- Cups		Bottle	x
- Mouse		- Phone	
- Laptop	x	- Charger	
- Bin	x	- Extensor	
- Plants		- Paper	
- Pen holder	x	- Lamp	
- Photo frame		- Books	
- Mouse pad		- Backpack	

2.Display tests:

Display test 1: Alone, in front of window. Table measurements: 103 Chair measurements: no chair Space around the desk: 180	Display test 2: in front of the wall, someone behind Table measurements: 81 Chair measurements: 53 Space around the desk: 180	
Display your items and sit on the chair. Answer the following questions measuring your grade of satisfaction, being the 1 very unsatisfied and the 5 totally satisfied.		
	TEST 1	TEST 2
CHARACTERISTICS	1 2 3 4 5	1 2 3 4 5
The table is big enough, I can put all my items.		x
The table is tall enough, I don't hit my knees.		x
The table is deep enough, I can stretch my legs	x	
The chair is wide enough, I don't feel stuck.		x
The chair is comfortable, I could sit here for long.		x
The chair is high enough, my feet are flat on the floor.		
I'm comfortable with the environment around me.	x	
Comments: test1: too small and enclosing. the window in front is okay but without closing it test2: prefer the window in front of her better than beside. too much people in the workspace. 136 from middle of back to wall.		

Display test 3: shared with a wall Table measurements: 103 Chair measurements: no chair Space around the desk: 200 Height of the wall:	Display test 4: back against other Table measurements: 76 Chair measurements: 51 Space around the desk: 200	Display test 5: sitting on the shared table with others Table measurements: 71 Chair measurements: Space around the desk: 130
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Display your items and sit on the chair. Answer the following questions measuring your grade of satisfaction, being the 1 very unsatisfied and the 5 totally satisfied.															
	TEST 3					TEST 4					TEST 5				
CHARACTERISTICS	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
The table is big enough, I can put all my items.					x					x			x		
The table is tall enough, I don't hit my knees.				x						x					x
The table is deep enough, I can stretch my legs				x						x			x		
The chair is wide enough, I don't feel stuck.										x					x
The chair is comfortable, I could sit here for long.								x							x
The chair is high enough, my feet are flat on the floor.										x					x
I'm comfortable with the environment around me.			x					x				x			
Comments: test3: light is quite important. just a window in the room is okay. enough space for chair to fit in it. 97 from desk to wall test4: a bit less comfortable with other person working in front. more distractions. test5: cant have screen near her. the table is really low. not comfortable. bigger table. uncomfortable to sit there every day.															

3. Choose your favourite desk:					
Answer the following questions					
	1	2	3	4	5
<b>Favourite desk</b>			x		
Why	<b>more space, deeper, reachable.</b>				
Comments	-				
<b>Favourite chair</b>					x
Why	<b>comfortable</b>				
Comments	-				
<b>Favourite environment</b>	x				
Why	<b>window in front.</b>				
Comments	-				



# lab test

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## General notes

### *Test 1*

- Likes more window on the back for not having sun in the face.
- feels tight when having walls (1m) feeling uncomfortable
- 1.68 feels more comfortable
- He would prefer not giving the back to his colleagues. prefers facing them or having some kind of division but facing each other.
- (In between to walls) he likes more if he can somehow see his colleagues
- 1m separation form walls (uncomfortable)
- facing each other is not uncomfortable

### *Test 2*

- likes having a windows at the side
- 2: wall (side) 145cm
- 3 : better without screen, wall (back) 90cm
- 4 : more room, less claustrophobic, higher screen is better than a lower screen

### Test 3

- having a window in front is best
- 2: wall in front is not good, window behind is not good, colleague behind is not good, wall (side) 137cm
- 3: there is something under the table, table is too big, comfortable with the wall in front of her (prefer not to see her colleagues), not comfortable with the wall in the back (wants to have natural light from the window)
- 4: when working alone she doesn't want to see her colleagues (rather focus)
- 5: the backrest should be arrangeable, too many people around

### Test 4

- 1: very wide (in an negative way), very dirty, rather has a window on the side, window is important (important to open and close and to have blinds)
- 2: two walls which is not good, window is not seen from the desk, wall (side) 177cm, person in the back is not good
- 3: lower screen would be better (see the top of the hair), wall (back), space that people can pass by
- 4: like when it is more open, motivational to see their colleague, screens are good, but lower
- 5: lamp is too big (prefer smaller one), too compact (table should be bigger for three persons), armrests (which are changeable) are good, the more you can change on a chair the better it is, likes open space "not feeling like in a box" -> friendlier environment

### Test 5

- 1: A recycled paper box, Space for glasses missing. He wouldn't be okay if he had a wall in both sides (or window), needs a wardrobe, backpack issue.
- 2: Liquids away from computer, displays in the same distance, wall (side) 105cm, The chair is not wide enough, I'm sitting outside of the chair. Take into account that tall people is long-leg people.
- 4: don't want to see technical stuff like cables
- 5: the user has abandoned a screen, the keyboard and some other stuff, he likes the table for only 3 users, if not it's too crowded, only useful for meetings

### Test 6

- 1: A front window can disturb because of the direct sunshine. A side or back window would be better.
- 2: better than the first one, having a person in the back is okay, but it depends on which task he's doing
- 5: He would only use the table for meetings. All the items have been removed. He would only use one laptop, without the screen.

### Test 7

- 1: If there's a window (if it's necessary, she's not sure if she likes it), she prefers it on the front.
- 3: If it is an open space, she doesn't like that
- 4: Even if she knows the person in front of her and she has to work with this person, she doesn't like looking directly to them
- 5: The table is big enough, but it's too high, I feel uncomfortable with that.

### Test 9

- 1: He doesn't use a chair. More windows, better environment. He prefers watching people through the window directly
- 3: Prefers the windows in front
- 4: No really uncomfortable about someone in front of his. Partial closed, sound barrier.
- 5: Too small, don't cross borders. 2 h top, as maximum

### Test 8

- 1: He likes having some entertainment in front of his.
- 3: He thinks this chair is even worse than the 2nd
- 4: He prefers open with a small separation. A 15cm wall limit table. He doesn't like the curve of the table (there's stuff on the table behind him).
- 5: He feels uncomfortable about the limits of the table not being the limits of his space. He doesn't like that the posts are too close to others, so maybe the chair would not fit

### Test 10

- 1: likes windows
- 2: working with someone depends on the noise and what kind of work the person does (she wouldn't mind at all in general), doesn't work in the middle of the table (more to the left for writing with her right hand)
- 3: 73cm table, 54cm chair, 175 use space, try to see over the wall: it's too high, behind her there's not enough space
- 4: depends on the relationship with the co worker, and the work they do
- 5: not comfortable at all, maybe when I was in a meeting

### Test 11

- 1: he chose only a laptop, mouse and drink bottle, he use the desk to eat, but on one side only, like to have more space around, like a window in front of him
- 2: use a lot of electronic things, this electronic things would take a lot of space on his desk, the wall is very close to him
- 3: chair is not that wide, touch with his chair the wall behind him, it is to close, the same team, he wants to disappear the wall
- 4: the space is usefull, hard to set boundaries
- 5: the table feels weird, you don't know which space is yours, he can feel the middle of the table, the table should be higher, if we were in a different project, the table is not could,

### Test 12

- 1: for a long time the chair is not that comfortable, like to have a window, but maybe on the side, now it's distracting
- 2: the chair is not comfortable at all, she doesn't like a person in her back, the wall 110 away from her
- 3: she likes the shape of the table, worst environment because of the walls behind and in front of her, the wall is too close behind her
- 4: more comfortable, she doesn't care about seeing people, she likes that one
- 5: she likes working on this people, but the table need to be bigger

### Test 13

- 1: he does not need all the space in the table, he needs armrests, the chair is not that wide, but for me it's ok
- 2: he doesn't like that there's someone in his back working, he likes the wall close to him, 118 wall away from him
- 3: 116 wall behind him
- 4: have a wall is better to study
- 5: for three people is ok, just for a meeting, the wall is better, depends on the task you need to do

### Test 14

- 2: better than the first, used to seeing a wall in front of her, wall is more distanced -> she wants to put something (lamp, backpack, plant,...), wall (side) 153cm
- 3: likes this table very much (feels better, better material), wall helps to avoid distractions
- 4: likes this as well, for doing a project like ours it is perfect, but not for working alone (she wants to say hello to her "colleague")
- 5: table is too low, other people are too close, no personal space, colour grey (tables 1 and 2) is too depressed, like the private space in number 3

### Test 15

- 1: like having a window in front of her, but can be distracting, natural light is great, but having sunshine right in her face it wouldn't be good, chair is bad because it doesn't support her usual sitting position
- 2: window on the side is good, not good having someone in the back, wall (side) 160cm
- 3: likes the table but is not sure about the curve, wanna have a little wall marking the end of the table, wall being here is much too high, wall (back) 98cm
- 4: doesn't like to see under the persons table, would be distracted and talking all the time, needs a wall!!
- 5: for working in groups it is great, chair -> she is scared to fall because of the backrest, it is too comfortable will fall asleep easily, having a rest for the head at the chair would be good, chair has grip for the feet

### Test 16

- 1: window behind me is better, she wants to see what's happening behind her, having a window is good
- 2: the wall is ok, but not ok that there is someone behind her working
- 3: i feel very comfortable, the wall is ok, because you don't know, when it is closer, you feel more stucked, 102 is the max the wall can come closer
- 4: she feels distracted, she will always look up to see her, comfort in this environment, don't feel comfortable that another person can see her
- 5: working for a short time it's good, you can hear the tipping, you cannot put all your stuff on the table, you don't have your personal space

### Test 17

- 1: likes standing up, likes the general environment
- 2: not standing up because he does both, uses always the whole table, doesn't feel uncomfortable with the wall next to him
- 3: worse position
- 4: worked like this for four years, it wasn't hard for him
- 5: table is too low, cannot stretch his legs, does not want to have a lamp on his "small" part of the table, working like this not good (for group work it is okay, ) depends on how long you sit here, table: bigger is better

### Test 18

- works 50% standing and 50% sitting
- 1: needs a lot of space, has small cupboards around, not ideal (too small), window in front is perfect
- 2: less good than the first, wall (side) is too tight, wall (side) 136cm
- 3: actually needs a big table, work colleague would be okay on the other side, more light would be better (having the window in the back is okay), wall (back) 97cm
- 4: less comfortable
- 5: not two screens, doesn't know where to place stuff, sees end of the table as borders to the others, the table is low and not comfortable, table is too small



# lab test

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## Explanation on the test results

### *Set-up 1*

In this test, they were mainly discussing the window and the door position. Most people said that they preferred having the window in front of them, but some stated that it depended on how much sun would be hitting their faces, some others discussed the fact that the window in front could be a possible distraction as it is on street level, they said they could be distracted by the people passing by. The other main problem was the position of the door, they said that they would prefer to be facing the door to see what was happening behind them or to have control of who enters the room. We observed that many people had a preference for natural light but were concerned of reflection/glare from on monitors.

This test also showed us that there were the contrasting two types of people. Some who had many things on their desk (like two monitors) that said the space was good, and those who did not have that many things on their desk that said they had excessive amounts of space. The wall positioning was not a problem for most of the people tested.

### *Set-up 2*

On this test, the main discussion was having to work with a colleague behind their back and the wall besides them. Most people made comments on how they would feel uncomfortable turning their back to the other person working behind them due to cultural, privacy or size situations. Most of the people discussed how they would feel uncomfortable having the other person look at their monitor, and having a feeling of less or no privacy at all.

The wall beside the desk was somehow, also, a disturbing factor for most of the people because it was too near, and they felt it made it feel as if they had much less space. Some people also felt uncomfortable being in front of a wall because they said they felt trapped in a room. Many others were also concerned about the noise factors and other distractions with colleagues behind their backs.

### *Set-up 3*

The third test's main discussion was based on the two walls to the front and to the back. Some people were very comfortable with these two walls, which gave them the privacy they needed and they liked it for concentration activities. On the other hand, there was also a group of people that did not like having another colleague on the other side of the wall and the fact that they could not see them. They said that hearing someone but not being able to see them would be a big distraction for them.

We tested how close the wall on the back had to be for them to feel uncomfortable. Many gave the argument that they needed space behind their back to stretch and to have space to walk in between tasks. Another aspect to take into consideration was the natural light factor. Some people were concerned of not having direct natural light while working.

### *Set-up 4*

The arrangement of this test was very similar to test 3, but without a wall in the middle. It simulated a kind of private open office with walls surrounding the two desks. Both desks were facing each other and had the option to arrange the height of their desk. What most people discussed was the lack of privacy they experienced whilst having a person working face-to-face with them. They said that if they would have big monitor screens it would be better but that they would prefer a small wall in between. Some also made comments about the distractions of the possible hallways surrounding this private closed office.

Many others also liked this arrangement, if working in the same tasks as their colleague in front. Desk options were also a concern in this accommodation due to the availability of adaptable height options (depending on requirements). This created discomfort on the participants because they could somehow see the cables and the bottom of the desk in some positions and that made them uncomfortable.

### *Set-up 5*

This last test was on a completely different desk, it was a three-person sitting desk. Many people left out some or most of their chosen items to be able to fit them into the working space they were given. This desk did not have adaptable height and many people complained about it since they were also limited on the surface space of the desk. Many discussed that they would be okay with this workspace if they only had to work for one hour and were in a discussion meeting. But for any tasks involving long-term concentration itself it would be very uncomfortable. They also noticed that the table support was very narrow and limited them either side of their chair or prevented them from stretching their legs.

Another important observation whilst conducting this test was that the participants had the opportunity to choose the place they wanted to sit (one choosing to have their back to the door, one choosing to have the door sideways and the other one having the door in front). Most participants chose the place with the door on their side. Although, this was the workspace that most people complained about, they had the best comments about the chair option. They liked the office chair which had the most adaptable positions and was the most adjustable to each person's individual needs. They also said "the more adaptable, the better" referring to everything in general.

# dimensions humanscale

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- general a person spends 8h sitting on a desk
- no single chair can fit everybody, and functions
- adjustable chairs
- seat lengths less than 33cm don't give adequate seat support
- seat lengths greater than 40,6cm don't accommodate the small female
- seat widths less than 40,6 don't support the
- hard flat seats are uncomfortable for periods of over an hour
- hard seat front chairs compress the tissues hard
- no use of coarse texture as a seat covering
- better to have a lumbar support which is a little higher than too low
- armrests are useful aids to get in and out of chairs
- adjustability if the armrests height should be considered for those who sit for long periods
- combined Sit-Stand-Work is ideal
- the minimum size space must include the largest operator (97,5 percentile)

<i>Description</i>	<i>Measurements</i>
comfortable viewing zone for person seated at work table or desk	32°-45°
adjustable seat height for adults	34,5-52,3 cm
seat angles for work at a table or desk (backrest)	0°-5°
angle backrest to seat	95° (working) to 110° (relaxing)
a slight hollow in the seat	1,3 cm deep
average padded seat of medium foam	3,8 cm
padding seat of firm closed-cell padding	1,3 cm
softly padded front edge	radius of about 2,5-5,1 cm
armrest length, measured from the backrest	30,5 cm
max. viewing distance for a seated operator to a display	71,1 cm
armrest width	6,4-8,9 cm
seat surface angle	5° (working) to 20° (relaxing)
knee angle	110°-120°
adjustable desk height	67,3-78,7 cm
adjustable seat height (both sexes)	34,5-52,3 cm
adjustable typing table	52,1-67,3 cm
distance from work table to seat	25,4-30,5 cm
acoustic walls should be behind the operator	91-183 cm

# feedback mid-term presentation

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After the mid-term presentation, we felt it was important to go through our positive and negative feedback. In general, the presentation went very well. We were sufficiently prepared and everything went very smoothly. The teachers thought our PowerPoint was nicely done, sometimes more images could be used. By using pictures, certain things can be explained in a simpler manner and it is often a clarification for the listeners. During the questions round, we were not all able to answer. It is important for our final presentation that every member of the group speaks enough and equally. This will make the group appear more confident.

For the final presentation, we will try to divide the tasks in order to allow sufficient time at the end to practice. During the mid-term, we largely did everything together. Then we would write the text separately and then group it altogether.









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**OSLOMET**

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